SONY

AUDIO CONVERTER UNIT

DMA-2000

OPERATION AND MAINTENANCE MANUAL

1st Edition

Serial No. 10001 and Higher (UC)

Serial No. 20001 and Higher (J)

Serial No. 30001 and Higher (EK)

For the customers in the USA

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

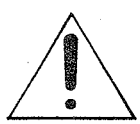
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC rules.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Warning: Using this unit at a voltage other than 120V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

For the customers in Canada
This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada
Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

Bescheinigung des Herstellers
Hiermit wird bescheinigt, daß die Ton-Umsetzungseinheit DMA-2000 in Übereinstimmung mit den Bestimmungen der BMPT-Amtsblatt Vfg 243/1991 und Vfg 46/1992 funkentstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z.B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung. Dem Bundesamt für Zulassungen in der Telekommunikation wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Sony Deutschland GmbH
Hugo Eckener Str. 20
50829 Köln

Hinweis
Gemäß dem Amtsblätter des BMPT Nrm. 61/1991 und 6/1992 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieser Amtsblätter genügen muß.

VORSICHT
Um Feuergefahr und die Gefahr eines elektrischen Schlages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur einem Fachmann.

目 次
TABLE OF CONTENTS

1. 取り扱い操作

1-1. 概要.....1-1 (J)
1-2. 各部の名称と働き.....1-2 (J)
1-2-1. 前面パネル.....1-2 (J)
1-2-2. 後面 (コネクター) パネル.....1-4 (J)
1-3. 接続.....1-5 (J)
1-4. 仕様.....1-6 (J)

2. 設置

2-1. 電源.....2-1 (J)
2-1-1. AC電源の容量.....2-1 (J)
2-1-2. 電源コード.....2-1 (J)
2-2. 設置環境.....2-1 (J)
2-3. 外形寸法.....2-2 (J)
2-4. ラックマウントの方法.....2-3 (J)
2-5. 基板内スイッチ/LEDの設定.....2-3 (J)
2-6. 入/出力インターフェース.....2-4 (J)
2-6-1. コネクタの入/出力信号.....2-4 (J)
2-6-2. 適合コネクタ/ケーブル.....2-4 (J)

3. サービスインフォメーション

3-1. 基板配置図.....3-1 (J)
3-2. 外装の取り外し.....3-1 (J)
3-2-1. 天板の取り外し.....3-1 (J)
3-2-2. フロントパネルの取り外し.....3-2 (J)
3-3. スイッチングレギュレータの取り外し.....3-2 (J)
3-4. 補修用部品注意事項.....3-3 (J)
3-4-1. 補修用部品注意事項.....3-3 (J)
3-4-2. チップ部品の交換方法.....3-3 (J)

4. 電気調整

4-1. 使用機器、治工具.....4-1 (J)
4-2. 調整 (AD-101基板).....4-2 (J)
4-2-1. LINE INPUT, AD変換レベル, オフセットレベル調整.....4-2 (J)
4-2-2. MIC INPUT, CMR (同相成分除去), レベル調整.....4-4 (J)
4-2-3. DA変換レベル, LINE OUTPUTレベル調整.....4-5 (J)

1. OPERATION

1-1. Overview.....1-1 (E)
1-2. Location and Function of Parts and Controls.....1-2 (E)
1-2-1. Front Panel.....1-2 (E)
1-2-2. Rear Panel.....1-4 (E)
1-3. Connections.....1-5 (E)
1-4. Specifications.....1-6 (E)

2. INSTALLATION

2-1. Power Supply.....2-1 (E)
2-1-1. Capacity of AC Power Supply.....2-1 (E)
2-1-2. Power Cord.....2-1 (E)
2-2. Installation Environment.....2-1 (E)
2-3. External Dimensions.....2-2 (E)
2-4. Rack Mounting.....2-3 (E)
2-5. Setting of Switches/LED on the Board.....2-3 (E)
2-6. Input/Output Interface.....2-4 (E)
2-6-1. Input/Output Signal of the Connector.....2-4 (E)
2-6-2. Connectors/Cables For Connection.....2-4 (E)

3. SERVICE OVERVIEW

3-1. Boards Location.....3-1 (E)
3-2. Cabinet Removal.....3-1 (E)
3-2-1. Top Plate Removal.....3-1 (E)
3-2-2. Front Panel Removal.....3-2 (E)
3-3. Switching Regulator Removal.....3-2 (E)
3-4. Notes on Repair Parts.....3-3 (E)
3-4-1. Notes on Repair Parts.....3-3 (E)
3-4-2. Replacement Procedure for Chip Parts.....3-3 (E)

4. ELECTRICAL ALIGNMENT

4-1. Equipment Required/Tool.....4-1 (E)
4-2. Adjustment (AD-101 Board).....4-2 (E)
4-2-1. LINE INPUT, AD Conversion Level, Offset Level Adjustment.....4-2 (E)
4-2-2. MIC INPUT, CMR (Common Mode Rejection), Level Adjustment.....4-4 (E)
4-2-3. DA Conversion Level, LINE OUTPUT Level Adjustment.....4-5 (E)

5. BLOCK DIAGRAM AND CIRCUIT DESCRIPTIONS

6. BOARD LAYOUTS

AD-101 6-2
VR-176 6-4
FRAME WIRING 6-5
CN-942
DP-131
SW-645
SW-669 6-5

7. SCHEMATIC DIAGRAMS

AD-101 7-1
VR-176 7-3
FRAME WIRING 7-4
CN-942
DP-131
SW-645
SW-669 7-4

8. SEMICONDUCTOR PIN ASSIGNMENTS

9. SPARE PARTS

9-1. Notes on Spare Parts 9-1
9-2. Exploded View and Parts 9-2
9-3. Electrical Parts List 9-5
9-4. Accessories Supplied 9-12

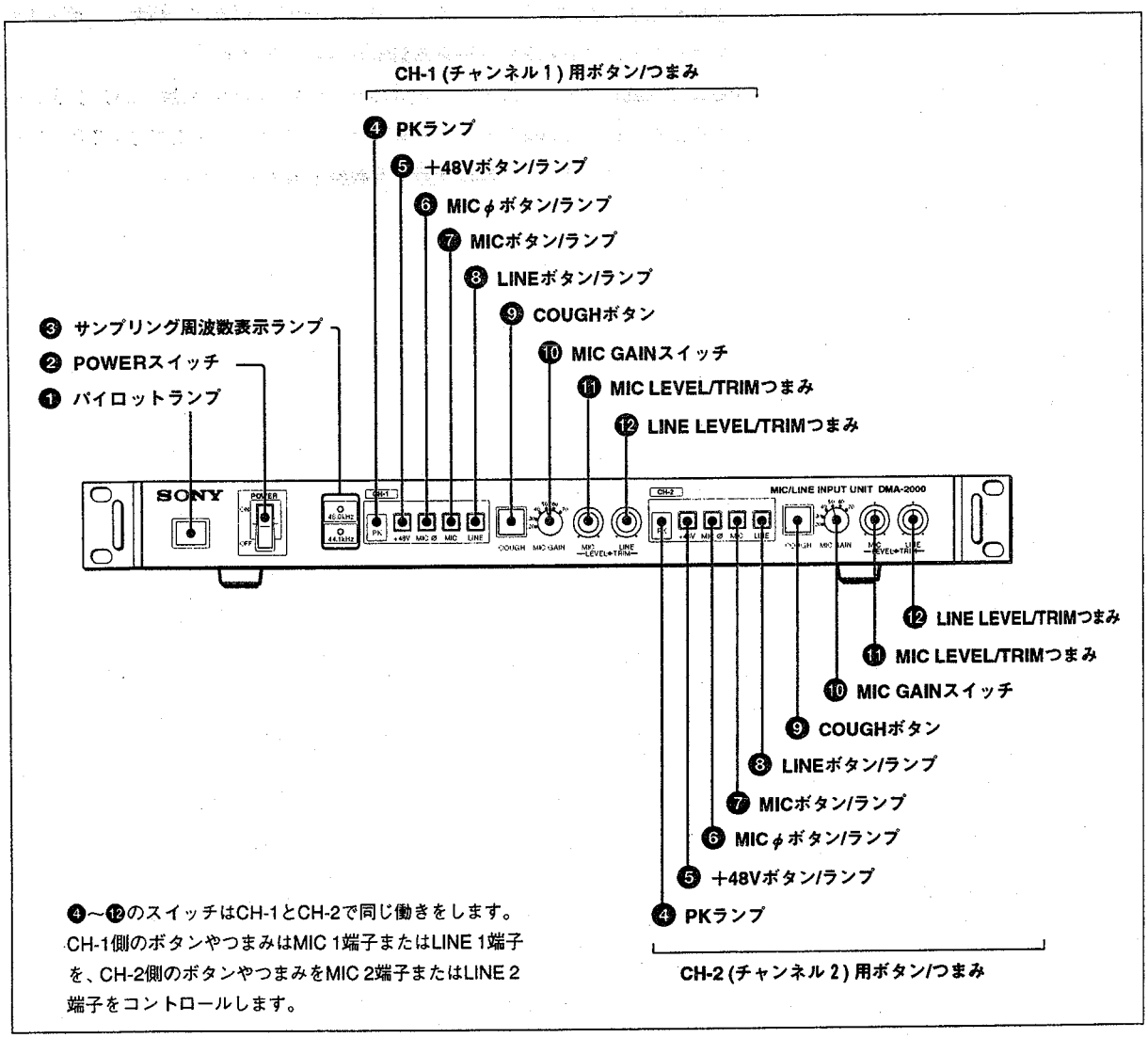
第1章　取り扱い操作

1-1 概要

ソニーオーディオコンバーターユニットDMA-2000は、マイクやアナログのライン信号をAES/EBUフォーマットのデジタルオーディオ信号に変換し、デジタルミキサーやデジタルVTRに音声を供給するユニットです。
本機は、2系統のアナログオーディオ信号をデジタル信号に変換し出力することができます。また、1系統（2チャンネル）のデジタルオーディオ信号を2チャンネルのアナログオーディオ信号に変換する機能も備えています。

1-2 各部の名称と働き

1-2-1 前面パネル



前面パネル

❶ パイロットランプ

本機の電源が入ると点灯します。

❷ POWER (電源) スイッチ

ON側を押すと、本機の電源が入り、パイロットランプが点灯します。
電源を切るときは、OFF側を押します。

❸ サンプリング周波数表示ランプ

後面 (コネクター) パネルのFsスイッチの設定に応じて、アナログ・デジタル変換時のサンプリング周波数を表示します。
スイッチが48.0kに設定されているときは48.0kHzランプが、44.1kに設定されているときは44.1kHzランプが点灯します。

❹ PK (ピーク) ランプ

音声レベルが基準値を5 dB超えると点灯します。

❺ +48V (ファントム電源) ボタン/ランプ

MIC端子に電源供給を必要とするコンデンサーマイクを接続したとき押します。ランプが点灯し、+48 Vの電源をマイクに供給中であることを表示します。

❻ MIC ϕ (マイク入力位相反転) ボタン/ランプ

押すとランプが点灯し、マイク入力の位相が反転します。

❼ MIC (マイク) ボタン/ランプ

押すとランプが点灯し、マイク入力がデジタル信号に変換され、D.OUT端子から出力されます。もう一度押すとランプは消灯します。
MICランプとLINEランプの両方が点灯しているときは、マイク入力とライン入力がミックスされて出力されます。

❽ LINE (ライン) ボタン/ランプ

押すとランプが点灯し、ライン入力がデジタル信号に変換され、D.OUT端子から出力されます。もう一度押すとランプは消灯します。
MICランプとLINEランプの両方が点灯しているときは、マイク入力とライン入力がミックスされて出力されます。

❾ COUGH (コフ) ボタン

外部からのコフコントロールに関係なくマイクをONにします。

❿ MIC GAIN (マイク利得) スイッチ

MIC端子への入力信号のレベルに合わせてスイッチを切り換えます。

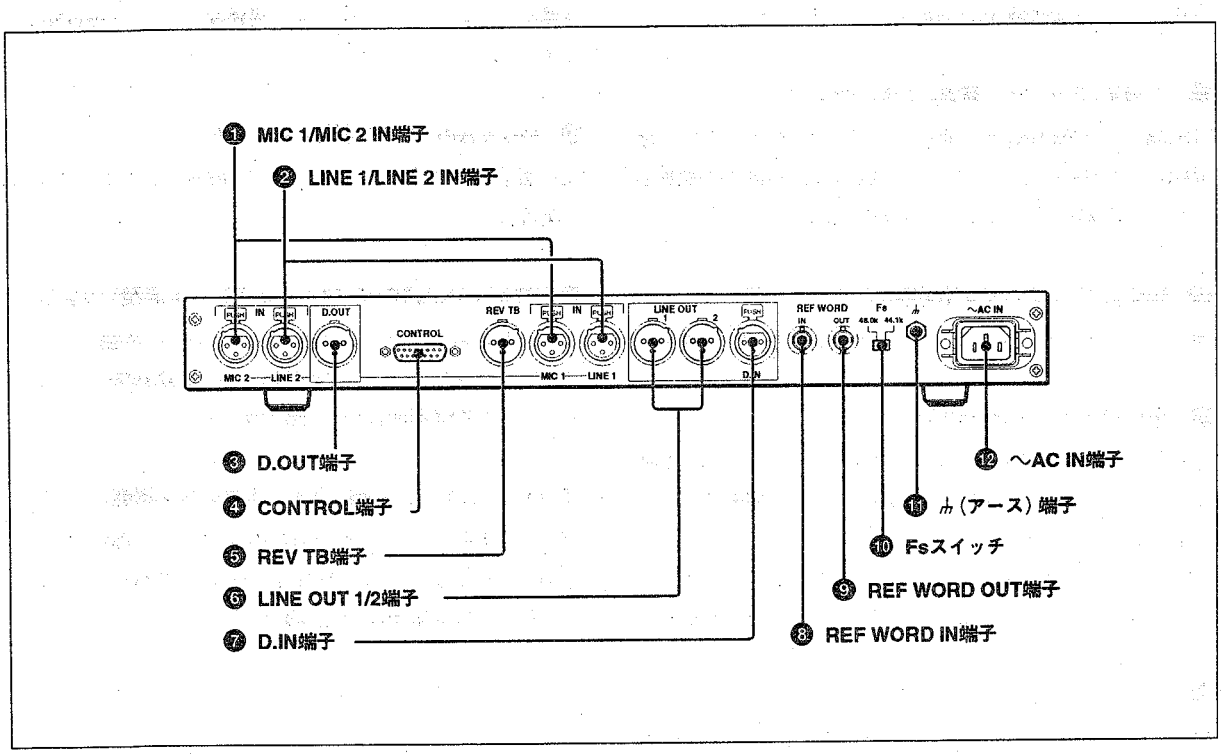
⓫ MIC LEVEL/TRIM (マイク入力レベル調整) つまみ

外側のつまみはマイク入力信号のレベルを調整します。内側のつまみはマイク入力信号レベルの微調整 (トリム) をします。調整範囲は±12 dBです。

⓬ LINE LEVEL/TRIM (ライン入力レベル調整) つまみ

外側のつまみはライン入力信号のレベルを調整します。内側のつまみはライン入力信号レベルの微調整 (トリム) をします。調整範囲は±12 dBです。

1-2-2 後面（コネクター）パネル



後面パネル

❶ MIC 1/MIC 2 IN（マイク入力1/2）端子（XLR-3-31）

マイクロホンを接続します。MIC 1端子は前面のCH-1側のボタンとつまみに、MIC 2端子はCH-2側のボタンとつまみに対応しています。

❷ LINE 1/LINE 2 IN（ライン入力1/2）端子（XLR-3-31）

アナログオーディオ信号を接続します。LINE 1端子は前面のCH-1側のボタンとつまみに、LINE 2端子はCH-2側のボタンとつまみに対応しています。

❸ D.OUT（デジタル信号出力）端子（XLR-3-32）

MIC 1/MIC 2 IN端子、LINE 1/LINE 2 IN端子に接続したアナログオーディオ信号がAES/EBUフォーマットのデジタルオーディオ信号に変換されて出力されます。

❹ CONTROL（コントロール）端子（D-SUB 15ピン）

コフとREV TBを外部からコントロールするとき、コントロール機器を接続します。

❺ REV TB（トークバック出力）端子（XLR-3-32）

チャンネル1とチャンネル2のマイクの音声をミックスして出力します。CONTROL端子からの信号で、出力をON/OFFします。

❻ LINE OUT 1/2（ライン出力1/2）端子（XLR-3-32）

D.IN端子に接続したデジタルオーディオ信号がアナログオーディオ信号に変換されて出力されます。

❼ D.IN（デジタル入力）端子（XLR-3-31）

AES/EBUフォーマットのデジタルオーディオ信号を接続します。

❽ REF WORD IN（基準ワードシンク信号入力）端子（BNC型）

基準信号としてワードシンク信号を入力します。

⑨ REF WORD OUT (基準ワードシンク信号出力) 端子 (BNC型)

システムの基準信号に同期したワードシンク信号を出力します。

⑩ Fs (周波数切り換え) スイッチ

システムに合わせてサンプリング周波数を切り換えます。スイッチの設定に応じて前面パネルのサンプリング周波数表示ランプが点灯します。

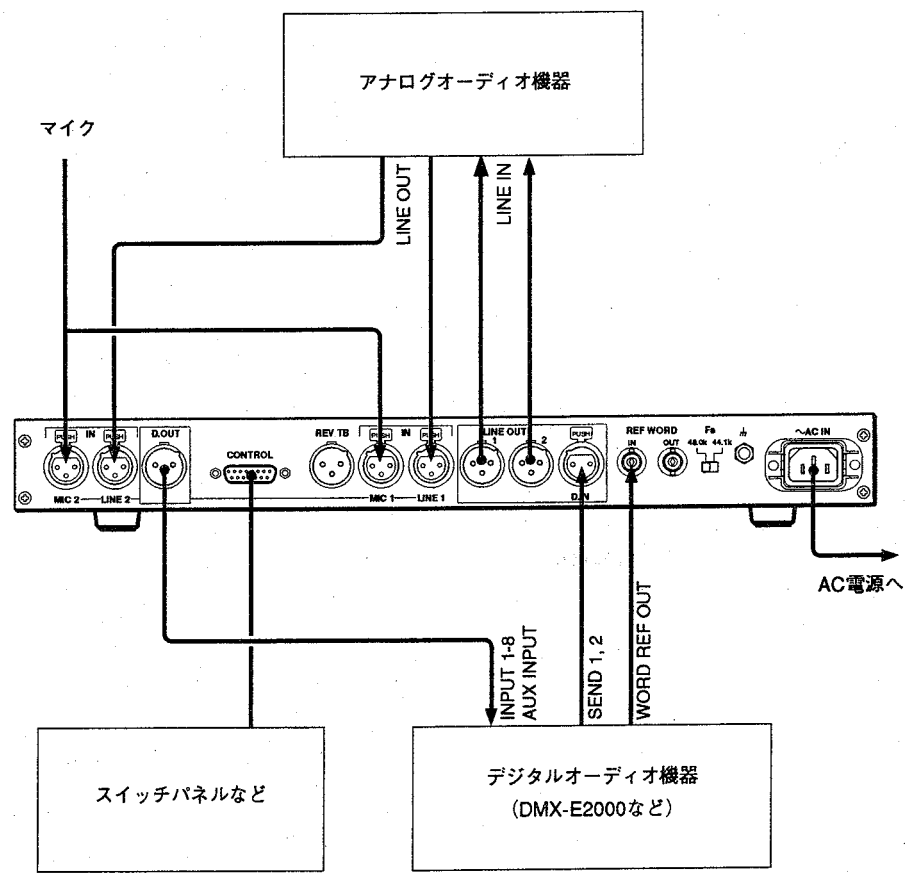
⑪ ⏚ (アース) 端子

必要に応じて接地します。

⑫ ～AC IN端子

付属のAC電源コードで、AC電源に接続します。

1-3 接続



接続図

1-4 仕様

一般

電源電圧	AC 100～120 V、50/60 Hz
消費電力	30 W
外形寸法	19インチEIAJ規格ラック幅、高さ1U
	424×43.6×350 mm（幅/高さ/奥行き）
質量	7 kg

入力端子

アナログ入力	チャンネル数: 2チャンネル
マイク入力	コネクター: MIC 1 IN、MIC 2 IN (XLR-3-31)
	基準レベル: 20、30、40、50、60、70 dB
	切り換え可
	トリム可変範囲: ±12 dB
ライン入力	コネクター: LINE 1 IN、LINE 2 IN (XLR-3-31)
	基準レベル: +4 dBs（最大+24 dBs）
	トリム可変範囲: ±12 dB
デジタル入力	チャンネル数: 2チャンネル
	コネクター: D.IN (XLR-3-31)
	フォーマット: AES/EBU、トランス付き
	データスロット: 24ビット
	インピーダンス: 110Ω
ワードシンク信号入力	コネクター: REF WORD IN (BNC型)
	フォーマット: W.CLK、TTLレベル
	最小入力電圧: 3.0 V (Highレベル)
	対応サンプリング周波数: 44.1 kHz、48.0 kHz
	インピーダンス: 75Ω

出力端子

デジタル出力	チャンネル数: 2チャンネル
	コネクター: D.OUT (XLR-3-32)
	フォーマット: AES/EBU、トランス付き
	データスロット: 24ビット
	周波数特性: 20 Hz～20 kHz +0.2/−0.5 dB
	ひずみ率: 0.02%以下、1 kHz基準レベルにて
	ダイナミックレンジ: 100 dB以上
	入力換算雑音: −126 dBs、入力150Ω終端時、MIC IN
	クロストーク: 90 dB以上、8 kHzにて

アナログ出力	チャンネル: 2チャンネル
	コネクター: LINE OUT 1/2 (XLR-3-32)
	基準出力レベル: +4 dBs、600Ω負荷
	最大出力レベル: +24 dBs、600Ω負荷
	出力インピーダンス: 150Ω、平衡、1 kHz
	周波数特性: 20 Hz～20 kHz +0.2/−0.5 dB
	ひずみ率: 0.02%以下、1 kHz基準レベルにて
	ダイナミックレンジ: 105 dB以上
	クロストーク: 90 dB以上、8 kHzにて
ワードシンク信号出力	コネクター: REF WORD OUT (BNC型×1)
	フォーマット: W.CLK、バッファアウト、TTLレベル
	対応サンプリング周波数: 44.1 kHz、48.0 kHz

付属品

AC電源コード (1)

オペレーション アンド メンテナンスマニュアル (1)

仕様および外観は、改良のため予告なく変更することがありますがご了承ください。

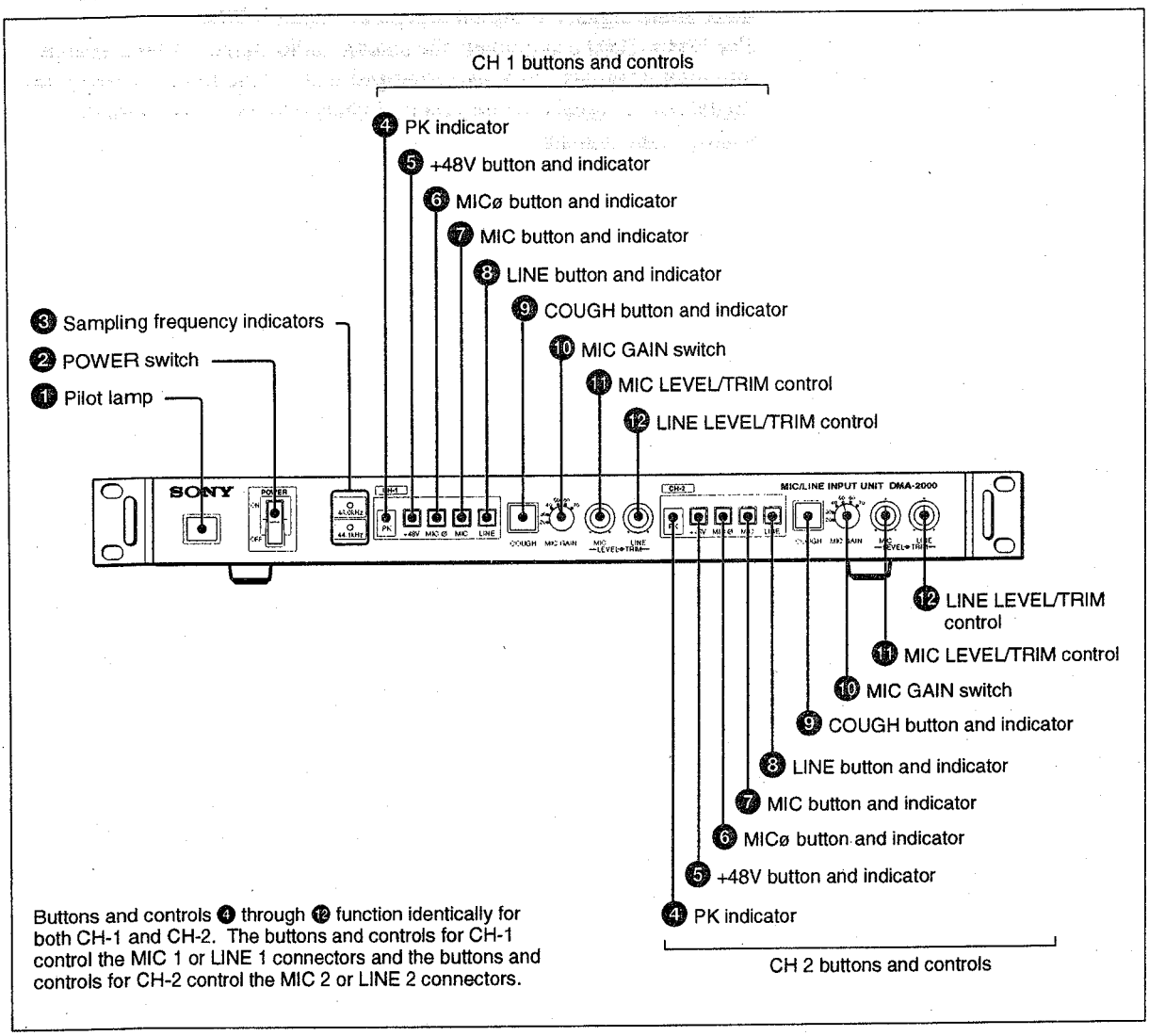
Section 1 Operation

1-1 Overview

The DMA-2000 audio converter unit converts microphone and analog line signals into AES/EBU format digital audio signals and supplies these audio signals to digital mixers or digital VTRs.
The DMA-2000 can convert the analog audio signals of two groups into digital signals. It is also equipped with a function to convert the digital audio signals in one group (2 channels) into two-channel analog audio signals.

1-2 Location and Function of Parts and Controls

1-2-1 Front Panel


CH 1 buttons and controls
4 PK indicator
5 +48V button and indicator
6 MICø button and indicator
7 MIC button and indicator
8 LINE button and indicator
9 COUGH button and indicator
10 MIC GAIN switch
11 MIC LEVEL/TRIM control
12 LINE LEVEL/TRIM control
3 Sampling frequency indicators
2 POWER switch
1 Pilot lamp
SONY
MIC/LINE INPUT UNIT DMA-2000
12 LINE LEVEL/TRIM control
11 MIC LEVEL/TRIM control
10 MIC GAIN switch
9 COUGH button and indicator
8 LINE button and indicator
7 MIC button and indicator
6 MICø button and indicator
5 +48V button and indicator
4 PK indicator
CH 2 buttons and controls
Buttons and controls 4 through 12 function identically for both CH-1 and CH-2. The buttons and controls for CH-1 control the MIC 1 or LINE 1 connectors and the buttons and controls for CH-2 control the MIC 2 or LINE 2 connectors.

Front Panel

1 Pilot lamp
Lights when you turn the power on.

2 POWER switch
Press the ON side to turn the power on, and the pilot lamp lights.
Press the OFF side to turn the power off.

3 Sampling frequency indicators
These indicators show the sampling frequency during analog/digital changeover according to the setting of the Fs switch on the rear (connector) panel.
The 48.0 kHz indicator lights when you set the Fs switch to 48.0k and the 44.1 kHz indicator lights when you set the Fs switch to 44.1k.

❹ PK (peak) indicator
This indicator lights when the audio level exceeds the reference value by 5 dB.

❺ +48V (phantom power) button and indicator
Press when a condensor microphone is connected to the MIC connector and power supply to the microphone is necessary. The indicator lights to show that 48 volts of power is being supplied to the microphone.

❻ MIC ø (microphone input phase reverse) button and indicator
Press the button to reverse the phase of the microphone input. The indicator lights.

❼ MIC (microphone) button and indicator
Press the button to convert microphone input to digital signals and output the signals from the D.OUT connector. The indicator lights.
When the MIC and LINE indicators are both lit, the microphone and line input will be mixed and output.

❽ LINE button and indicator
Press the button to convert the line input signals to digital signals and output the signals from the D.OUT connector. The indicator lights.
When the MIC and LINE indicators are both lit, the microphone and line input will be mixed and output.

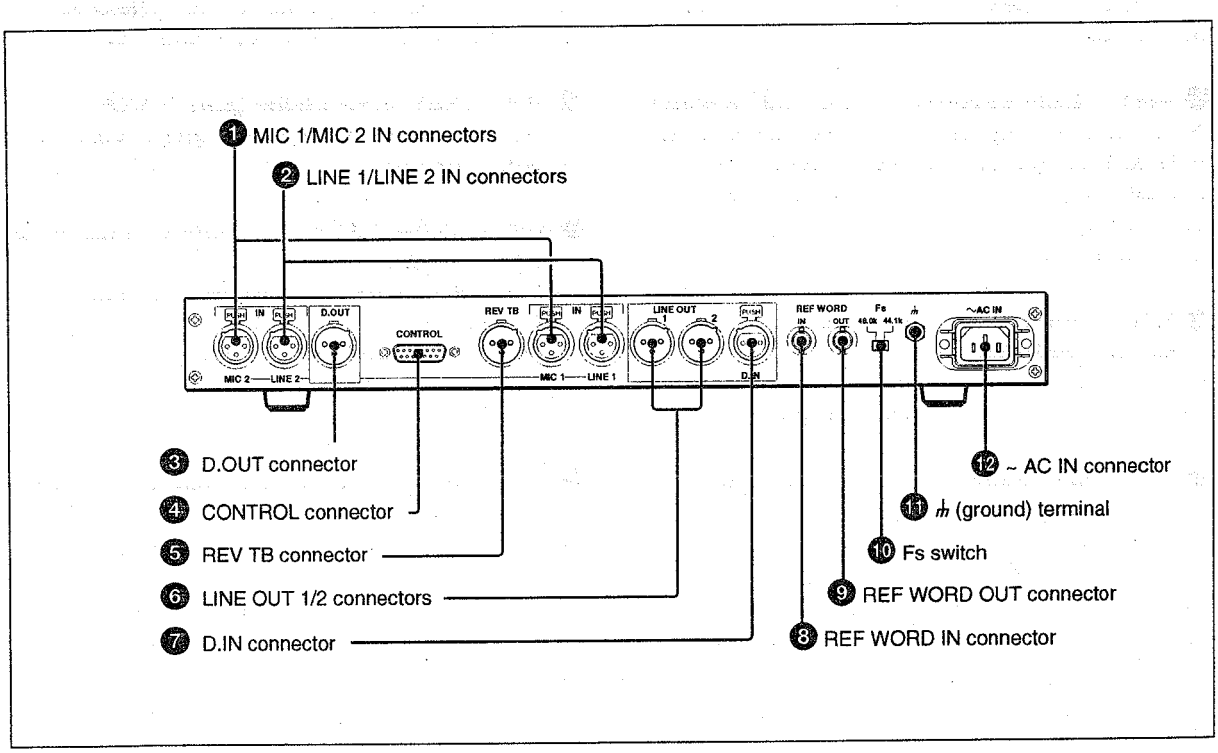
❾ COUGH button and indicator
Press to turn the microphone ON regardless of cough control from the external equipment.

❿ MIC GAIN (microphone gain) switch
Set the switch to the level of the signals input to the MIC connector.

⓫ MIC LEVEL/TRIM (microphone input level adjust) control
Turn the outer control to adjust the microphone input signal level.
Turn the inner control to fine-adjust (trim) the microphone input signal level within a range of ±12 dB.

⓬ LINE LEVEL/TRIM (line input level adjust) control
Turn the outer control to adjust the line input signal level.
Turn the inner control to fine-adjust (trim) the line input signal level within a range of ±12 dB.

1-2-2 Rear Panel



Rear Panel

❶ MIC 1/MIC 2 IN (microphone input) connectors (XLR-3-31)
Connect the microphones. The MIC 1 and MIC 2 connectors correspond to the respective buttons and controls on the front panel.

❷ LINE 1/LINE 2 IN (line input) connectors (XLR-3-31)
Accept the analog audio signals. The LINE 1 and LINE 2 connectors correspond to the respective buttons and controls on the front panel.

❸ D.OUT (digital signal output) connector (XLR-3-32)
Supplies the analog audio signals accepted by the MIC 1/MIC 2 IN connectors and LINE 1/LINE 2 IN connectors and converted into AES/EBU format digital audio signals.

❹ CONTROL connector (D-SUB 15-pin)
Connect a control device when you wish to control the cough and talk back from external equipment.

❺ REV TB (talk back output) connector (XLR-3-32)
Supplies the mixed channel 1 and 2 microphone audio signals. The output of thse signals is controlled with the signal supplied to the CONTROL connector.

❻ LINE OUT 1/2 (line output 1/2) connectors (XLR-3-32)
Supply the digital audio signals accepted by the D.IN connector and converted into analog audio signals.

❼ D. IN (digital input) connector (XLR-3-31)
Accepts AES/EBU format digital audio signals.

❽ REF WORD IN (reference word sync signal input) connector (BNC type)
Accepts the word sync signals as reference signals.

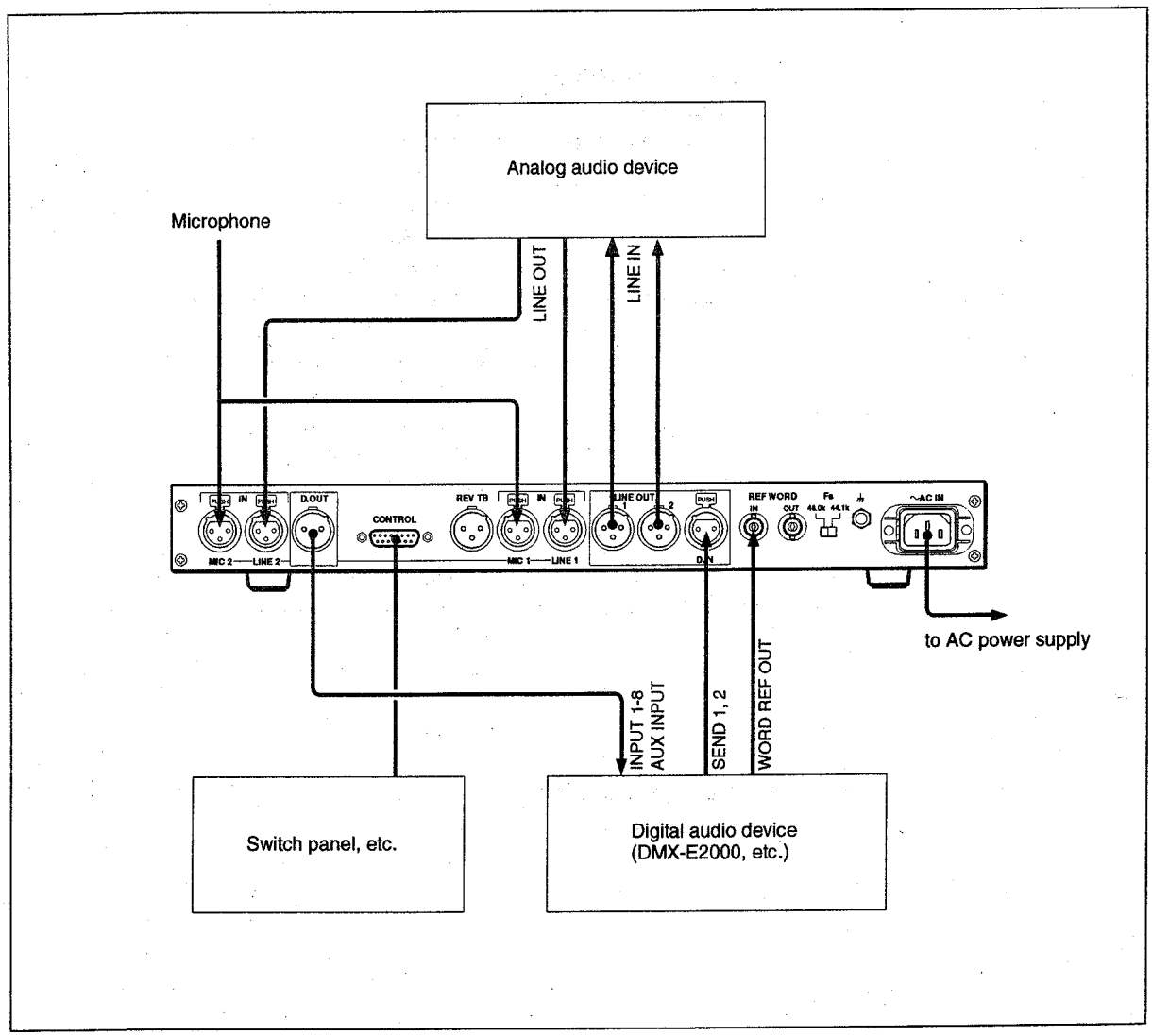
❾ REF WORD OUT (reference word sync signal output) connector (BNC type)
Outputs word sync signals synchronized with the system reference signals.

⑩ Fs (frequency select) switch
Selects the sampling frequency to match the system. The corresponding sampling frequency indicator on the front panel lights according to this switch setting.

⑪ ⏚ (ground) terminal
Used to ground the unit if necessary.

⑫ ~AC IN connector
Connect to the AC power source using the supplied AC power cord.

1-3 Connections



Connections

1-4 Specifications

General

Operating voltage	UC: 100 to 120 V AC EK: 220 to 240 V AC, 50/60 Hz
Power consumption	30 W
Dimensions	19-inch EIA standard, height of one unit 424 × 43.6 × 350 mm (w/h/d) ($16^3/_4 \times 1^3/_4 \times 13^7/_8$ inches)
Mass	7 kg (15 lbs. 6 oz.)

Input connectors

Analog input	Number of channels: 2
Microphone input	Connectors: MIC 1 IN, MIC 2 IN (XLR-3-31 type) Reference level: 20, 30, 40, 50, 60, or 70 dB (selectable) Trim range: ±12 dB
Line input	Connectors: LINE 1 IN, LINE 2 IN (XLR-3-31 type) Reference level: ±4 dBs (+24 dBs maximum) Trim range: ±12 dB
Digital input	Number of channels: 2 Connector: D. IN (XLR-3-31 type) Format: AES/EBU, with transformer Audio bit length: 24 bits Impedance: 110 ohms
Word sync signal input	Connector: REF WORD IN (BNC type) Format: W.CLK and TTL level Minimum input voltage: 3.0 V (high level) Sampling frequency: 44.1 kHz or 48.0 kHz Impedance: 75 ohms

Output connectors

Digital output	Number of channels: 2 Connector: D.OUT (XLR-3-32 type) Format: AES/EBU, with transformer Audio bit length: 24 bits Frequency range: 20 Hz to 20 kHz, +0.2/–0.5 dB Total harmonic distortion: less than 0.02% at 1 kHz reference level Dynamic range: 100 dB or more Input equivalent noise: –126 dBs, 150-ohm input at termination, MIC IN Crosstalk: 90 dB or more at 8 kHz

Analog output	Number of channels: 2 Connector: LINE OUT 1/2 (XLR-3-32 type) Reference output level: +4 dBs, 600-ohm load Maximum output level: +24 dBs, 600-ohm load Output impedance: 150 ohms, balanced, 1 kHz Frequency range: 20 Hz to 20 kHz, +0.2/–0.5 dB Total harmonic distortion: less than 0.02% at 1 kHz reference level Dynamic range: 105 dB or more Crosstalk: 90 dB or more at 8 kHz
Word sync signal output	Connector: REF.WORD OUT (BNC type × 1) Format: W.CLK, buffer outputs, TTL level Sampling frequency: 44.1 kHz or 48.0 kHz

Supplied Accessories

AC power cord (1)
Operation and maintenance manual (1)

Design and specifications are subject to change without notice.

第2章
設　置

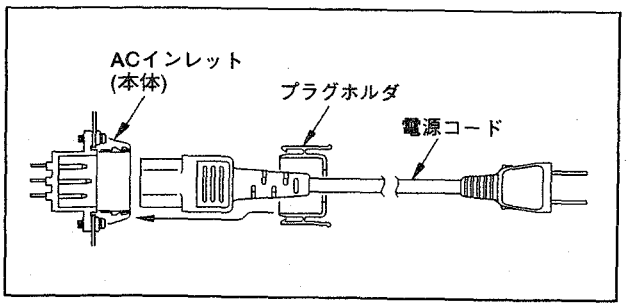
2-1. 電源

2-1-1. AC電源の容量

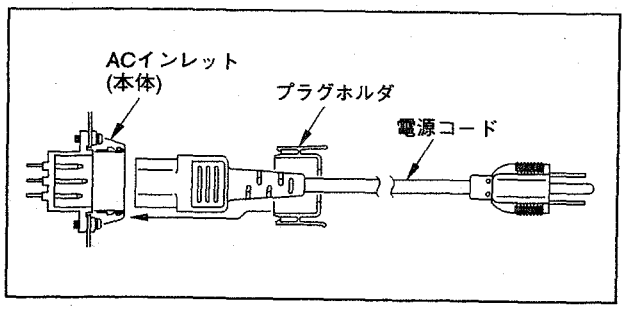
電源電圧　：AC100 V (For J)
AC120 V (For UC)
AC220～240 V (For EK)
電源周波数　：50/60 Hz
消費電力/電流：30 W (For J, UC)
0.3 A (For EK)

2-1-2. 電源コード

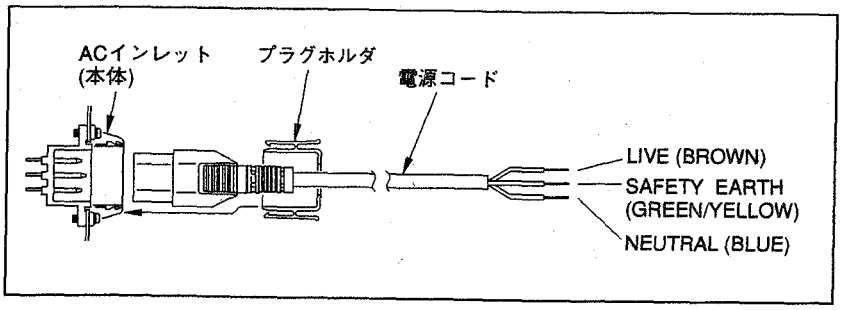
(For J)



(For UC)



(For EK)



2-2. 設置環境

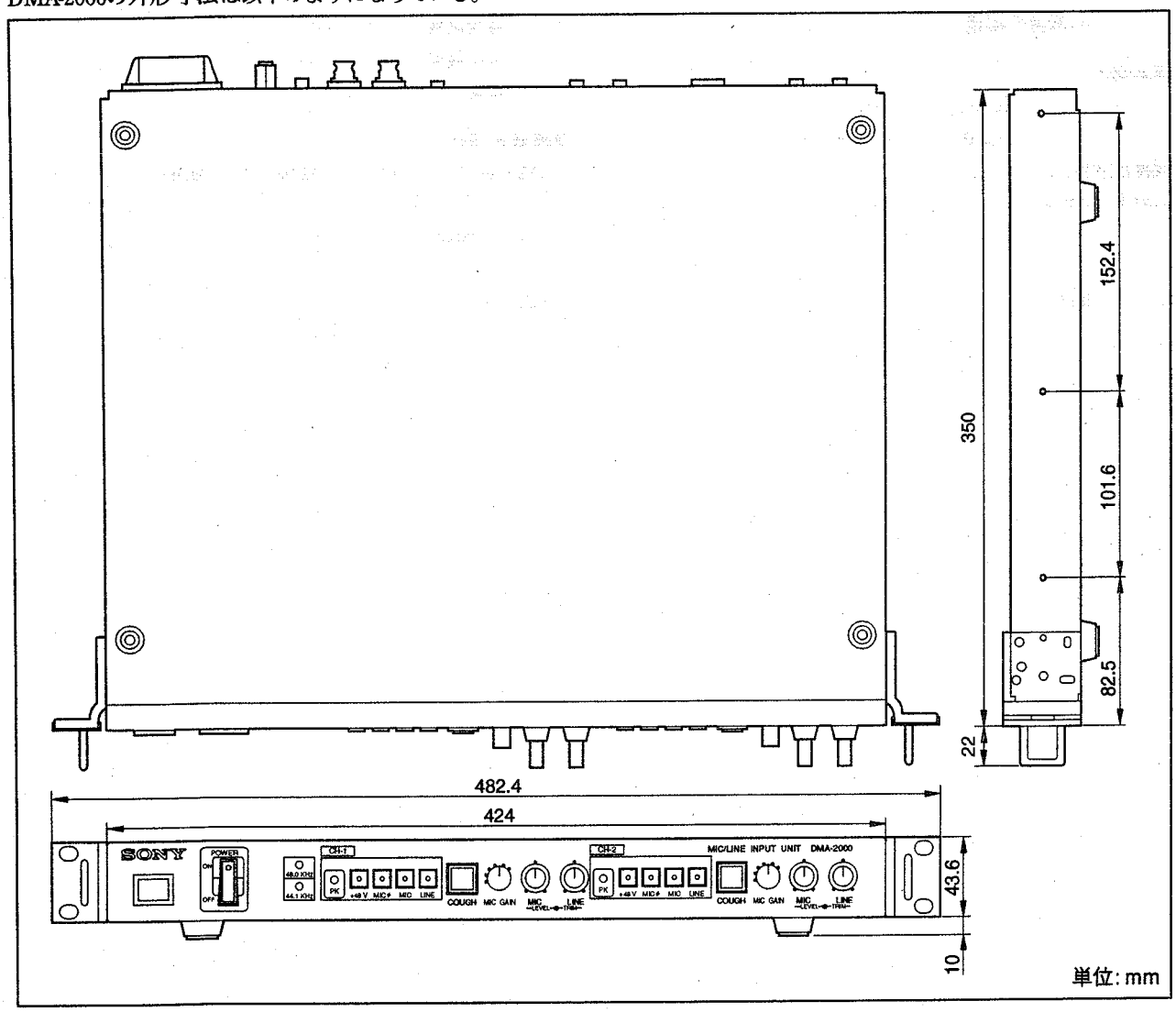
セット動作温度：0 ℃～+40 ℃
セット保存温度：–20 ℃～+60 ℃
セット重量　：7 kg

設置禁止場所

- 太陽光線または強力ﾗｲﾄが直接当たる場所
- ほこりの多い場所
- 強電界や強磁界の場所
- 熱源のそば
- 振動のある場所
- 電気的なノイズの多い場所
- 静電ノイズの発生しやすい場所

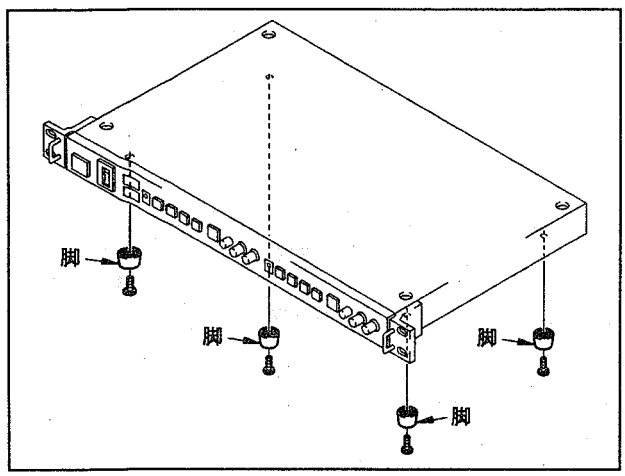
2-3. 外形寸法

DMA-2000の外形寸法は以下のようになっている。



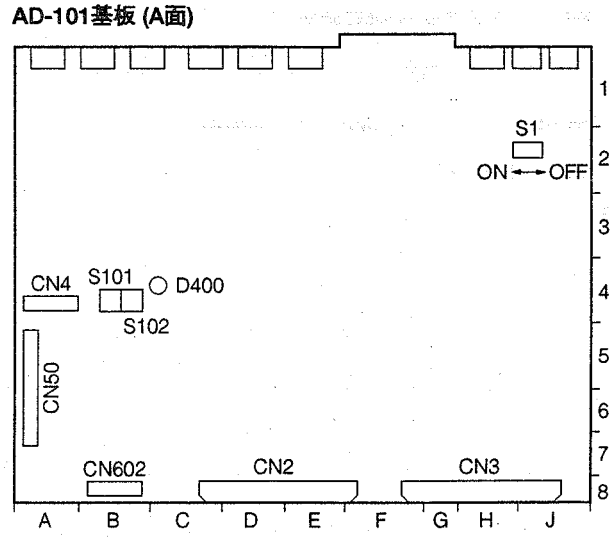
2-4. ラックマウントの方法

DMA-2000は19インチ標準ラックに組み込んで使用することができる。
ラックに組み込む際は、ラックマウントレールを使用してセット底面の脚4個を外して行う。



2-5. 基板内スイッチ/LEDの設定

AD-101基板 (A面)



スイッチ

S1: ADコンバータのプリエンファシス設定スイッチ
工場出荷時: OFF

S101, 102:
ソースIDインサータ設定用ロータリースイッチ
工場出荷時: S101: "0"
S102: "0"

S101/102の設定	S101	S102
0	AD_	—
1	AF_	1
2	AIR	2
3	ATR	3
4	CD_	4
5	EXT	5
6	HA_	6
7	MIC	7
8	MX_	8
9	STL	9
A	TR_	A
B	TT_	B
C	UTL	C
D	VTR	D
E	WR_	E
F	___	F

注意: "_" はブランクスペース

LED

D400: PLL UNLOCKインジケータ
WORD REF入力時: OFF

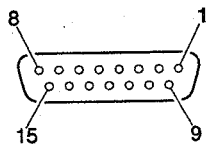
2-6. 入/出力インターフェース

2-6-1. コネクタの入/出力信号

コネクタの入出力信号は、以下のようになっている。

CONTROLコネクタ: D-Sub, 15P, FEMALE

- OUTSIDE VIEW -



ピン番号	入/出力	信号	信号レベル
1	IN	CONT COUGH 1 (OPEN: MIC OFF, CLOSE: MIC ON)	CLOSURE TO GND
2	IN	CONT REV TB 1 (OPEN: REV TB 1 ON, CLOSE: REV TB 1 OFF)	CLOSURE TO GND
3	—	—	—
4	—	GND	—
5, 6	N. C.	—	—
7	IN	CONT COUGH 2	CLOSURE TO GND
8	IN	CONT REV TB 2	CLOSURE TO GND
9	N. C.	—	—
10	—	GND	—
11～15	N. C.	—	—

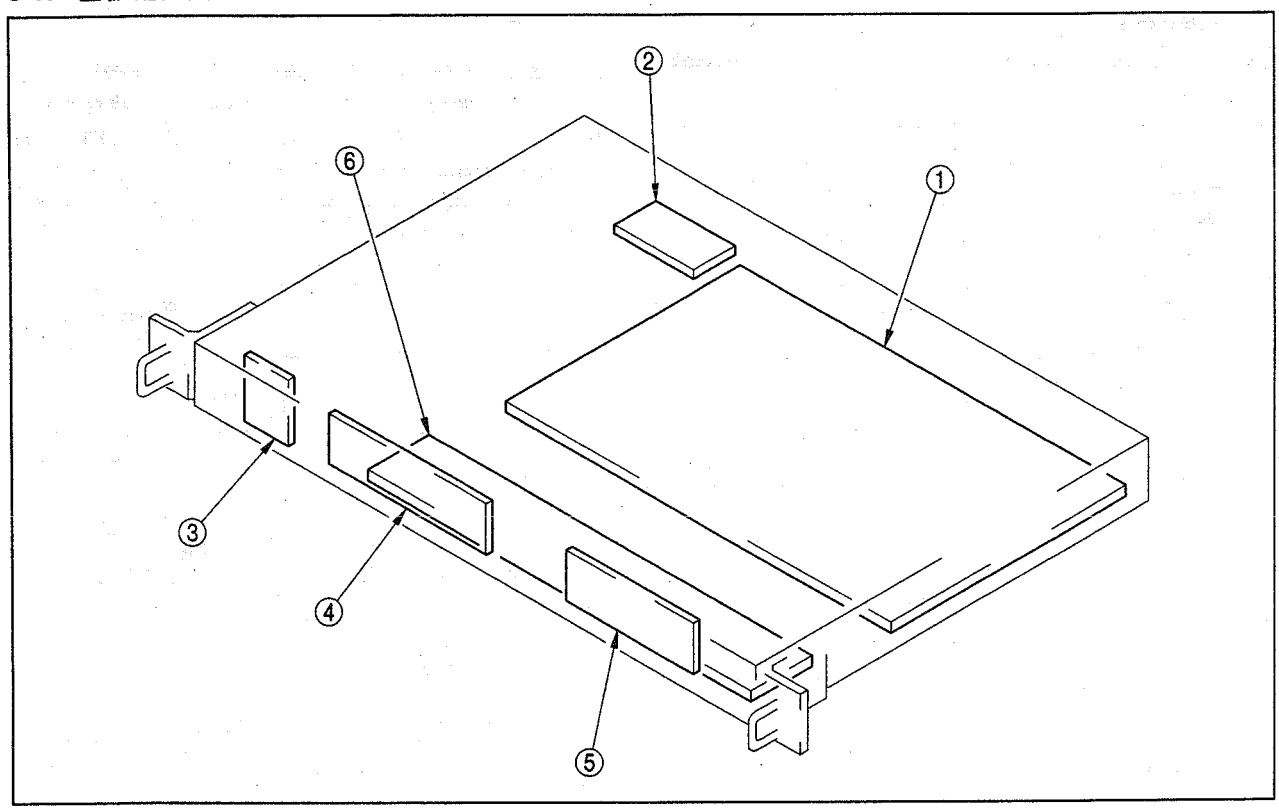
2-6-2. 適合コネクタ/ケーブル

リアパネル部の各種コネクタにケーブルを接続する際には、その先端に、下記のコネクタ/ケーブル
または、相当品を使用する。

DMA-2000側コネクタ		適合コネクタ/ケーブル	
使用先	名称	名称	ソニー部品番号
D. IN LINE IN 1, 2 MIC IN 1, 2	XLR, 3PIN, 雌	XLR, 3PIN, 雄	1-508-083-11 CANNON XLR-3-11C または相当品
D. OUT LINE OUT 1, 2 REV TB	XLR, 3PIN, 雄	XLR, 3PIN, 雌	1-508-084-11 CANNON XLR-3-12C または相当品
CONTROL	D-SUB, 15PIN, 雌	D-SUB, 15PIN, 雄	1-566-441-11
WORD REF IN WORD REF OUT	BNC	BNC	

第３章
サービスインフォメーション

3-1. 基板配置図



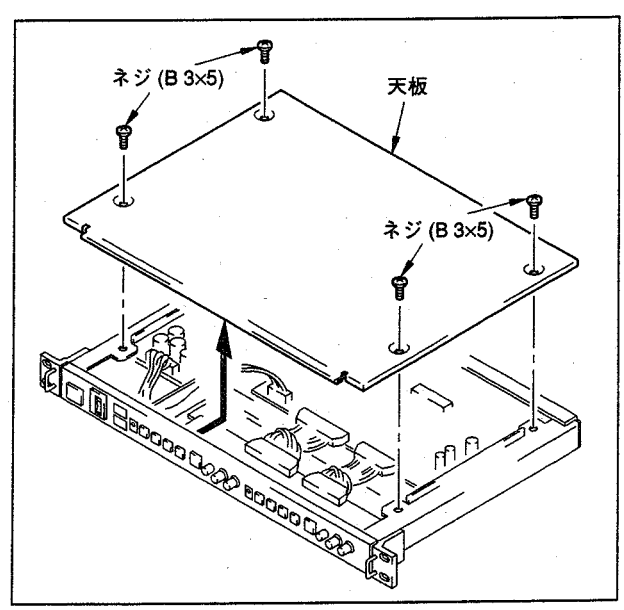
① AD-101: AD/DA Converter Board
② CN-942: BNC Connector Board
③ DP-131: LED Board
④ SW-645: Switch Board
⑤ SW-669: Switch Board
⑥ VR-176: Volume Board

3-2. 外装の取り外し

注意: 作業はPOWERスイッチをOFFにして行う。

3-2-1. 天板の取り外し

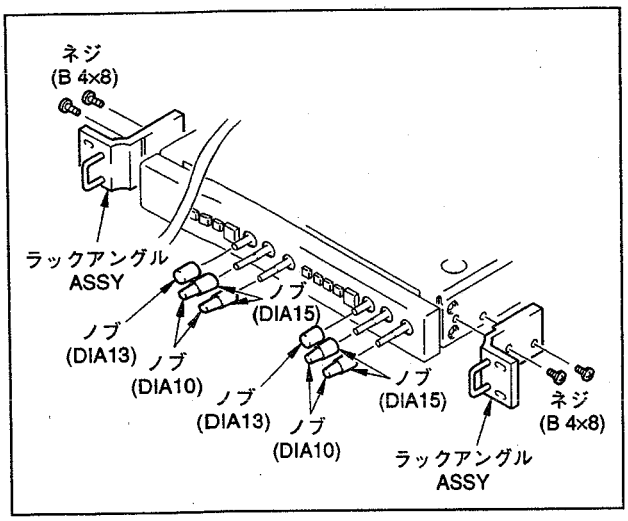
ネジ (B 3×5) 4本を外し、天板を取り外す。



3-2-2. フロントパネルの取り外し

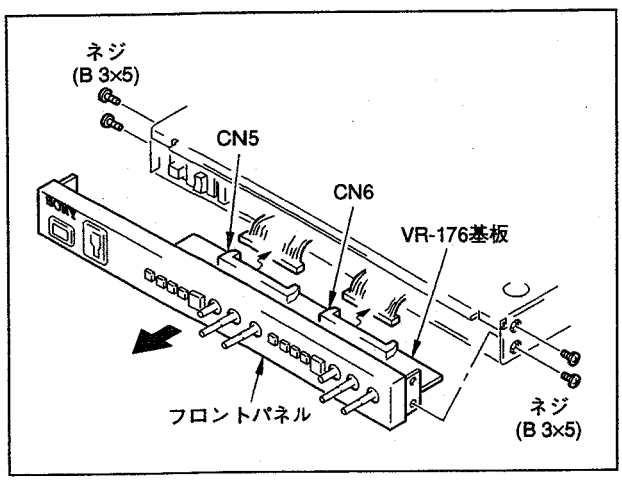
(1) ノブ (DIA13) 2個とノブ (DIA15) 4個, ノブ (DIA10) 4個を取り外す。

(2) ネジ (B 4×8) 4本を外し、左右のラックアングルASSYを取り外す。



(3) ネジ (B 3×5) 4本を外し、フロントパネルを矢印の方向に引き出す。

(4) VR-176基板のCN5, CN6コネクタよりハーネスを取り外す。



3-3. スイッチングレギュレータの取り外し

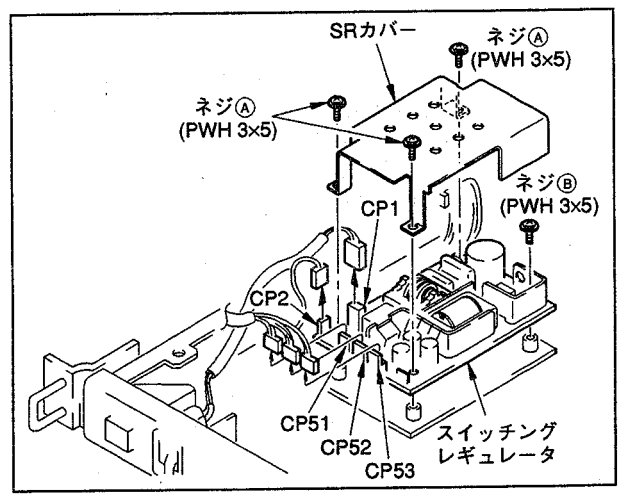
注意: 作業はPOWERスイッチをOFFにして、電源コードを外して行う。

(1) 天板を取り外す ("3-2-1. 天板の取り外し" 参照)。

(2) ネジⒶ (PWH 3×5) 3本を外し、SRカバーを取り外す。

(3) スイッチングレギュレータのコネクタCP1, CP2, CP51, CP52, CP53よりハーネスを外す。

(4) ネジⒷ (PWH 3×5) 1本を外し、スイッチングレギュレータを取り外す。



ヒューズの交換

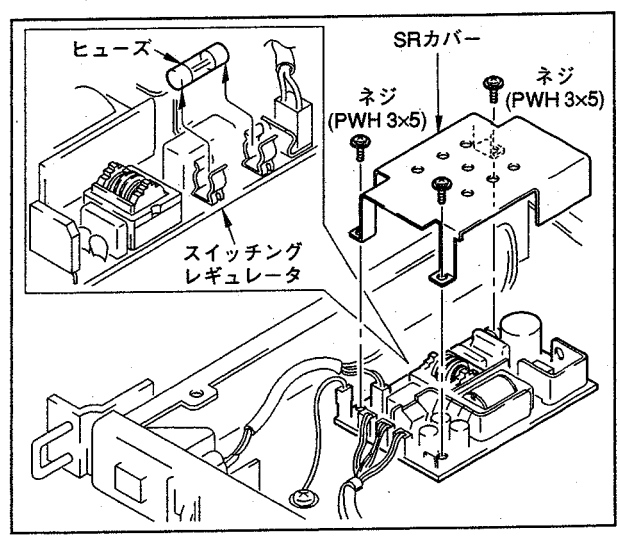
スイッチングレギュレータに搭載されているヒューズは、以下のように交換する。

用意する部品

• ヒューズ: ソニー部品番号 1-576-133-11

(1) 天板を取り外す ("3-2-1. 天板の取り外し" 参照)。

(2) ネジ (PWH 3×5) 3本を外し、SRカバーを取り外し、ヒューズを交換する。



3-4. 補修用部品注意事項

3-4-1. 補修用部品注意事項

(1) 安全重要部品
回路図、分解図、電気部品表中で⚠印付きの部品は、安全性を維持するために重要な部品である。従ってこれらの部品を交換する時には、必ず指定の部品と交換すること。

(2) 部品の共通化
ソニーから供給される部品はセットに実装されているものと異なることがある。
これは部品の共通化、改良等によるものである。
分解図や電気部品表には現時点での共通化された部品が記載されている。

(3) 部品の変更
部品の変更に関する情報は「CHANGED PARTS」を参照すること。

(4) 部品の在庫
部品表のSP (Supply code) 欄にoで示される部品は交換頻度が低い部品で、在庫していないことがあり、納期が長くなることがある。

(5) コンデンサ、抵抗の単位
回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されていることがある。
コンデンサ : μF
抵抗 : Ω

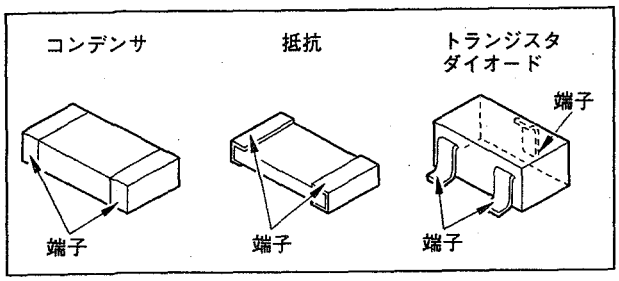
3-4-2. チップ部品の交換方法

用意する工具

はんだコテ	: 20 W程度。できれば、コテの温度を270±10 ℃にコントロールできる温度コントローラを使用すること。
編組線	: SOLDER TAULまたは同等品 ソニー部品番号: 7-641-300-81
はんだ	: 直径0.6 mmが望ましい。
ピンセット	

はんだ付条件

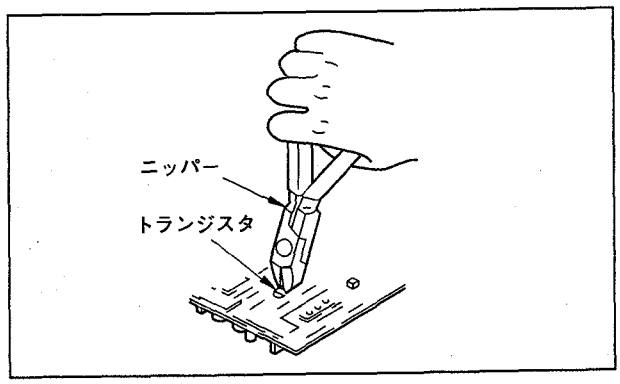
コテ温度	: 270 ±10 ℃
はんだ付時間	: 一端子について 2 秒以内にする。



• 抵抗、コンデンサの交換
(1) はんだコテの先をチップ部品の上にのせてチップ部品を加熱し、はんだが溶けた状態で横にずらす。
(2) 取り外した部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
(3) パターンにうすく予備はんだをする。
(4) 新しいチップ部品をパターンにのせ、両端をはんだ付けする。

注意: 取り外したチップ部品は再び使わないこと。

• トランジスタ、ダイオードの交換
(1) ニッパにて部品の端子を切断する。
(2) 切断した端子をはんだコテで取り除く。
(3) 取り除いた部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
(4) パターンにうすく予備はんだをする。
(5) 新しいチップ部品をパターンにのせ、端子をはんだ付けする。



• ICの交換
(1) 編組線を使って端子のはんだを取り除く。
(2) はんだコテで加熱しながら、ピンセットなどを使って端子を1本ずつパターンから外し、ICを取り除く。
(3) 取り除いた部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
(4) パターンにうすく予備はんだをする。
(5) 新しいチップ部品をパターンにのせ、端子をはんだ付けする。

第 4 章
電気調整

本章ではAD-101基板の修理および保守を行う際に必要な電気調整について述べている。

4-1. 使用機器、治工具

使用機器

名称	主な仕様	機器名
オーディオアナライザ (レベルメータ、オシレータ)	AES/EBUフォーマット信号 入･出力インタフェース内蔵	AUDIO PRECISION System One または相当品
オシロスコープ	周波数レンジ: DC～100 MHz 2現象 感度　　: 5 mV/div以上	—
デジタルメータ	AES/EBUフォーマット信号を モニターできる機器	SONY DMX-E2000、DMU-30等

治工具

名称	部品番号
調整ドライバ (2.0 mm)	7-770-731-03

4-2. 調整 (AD-101基板)

準備

スイッチ、コントロールの初期設定

スイッチ

FS	: 48 kHz
+48 V	: OFF
MIC	: OFF
MIC PHASE	: OFF
LINE	: ON
COUGH	: ON

コントロール

MIC GAIN	: 60 dB
MIC LEVEL	: MAX
MIC TRIM	: CENTER
LINE LEVEL	: MAX
LINE TRIM	: CENTER

AD-101基板

S1 (EMPHASIS) スイッチ	: OFF
S101スイッチ	: "0"
S102スイッチ	: "0"

4-2-1. LINE INPUT, AD変換レベル、オフセットレベル調整

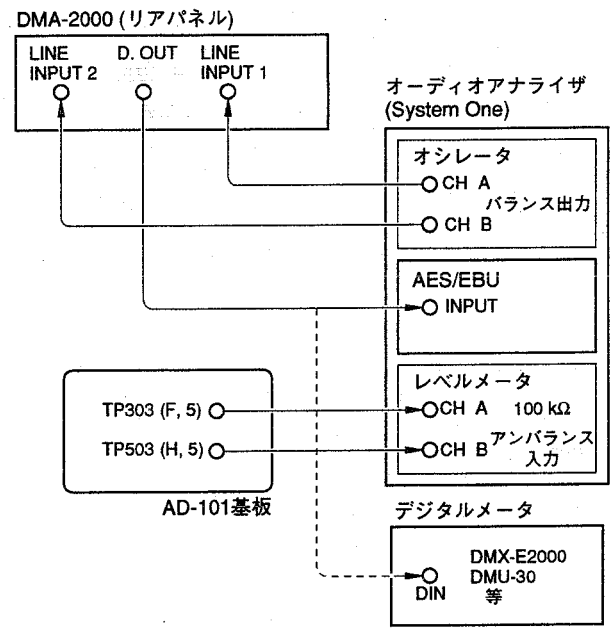
使用機器

オーディオアナライザ (System One)
デジタルメータ (DMX-E2000, DMU-30等)

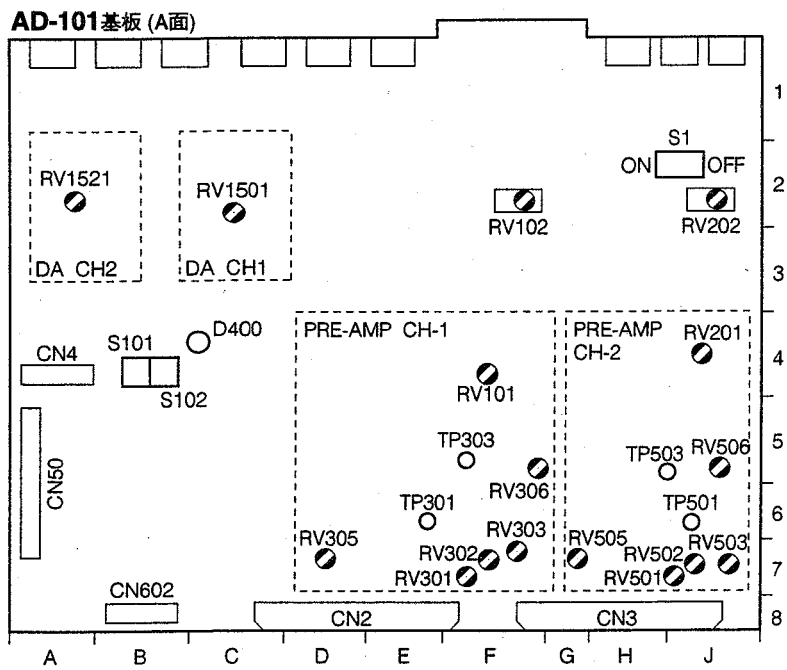
スイッチ、コントロール設定

"スイッチ、コントロール初期設定" に同じ

接続



調整箇所



調整

調整時の状態	規格	調整箇所 (AD-101基板)
ステップ1 • D. OUT端子 (DMA-2000) の出力信号をAES/EBU INPUT端子 (オーディオアナライザ) に入力する。 • オシレータ (オーディオアナライザ) よりLINE INPUT1またはLINE INPUT2端子に、1 kHz, 4 dBs (0 dBs=0.775 Vrms) の信号を入力する。 • レベルメータ (オーディオアナライザ) をINPUT1: TP303 (F, 5) またはINPUT2: TP503 (H, 5) に接続する。	LINE INPUT1: TP303 (F, 5) のレベル –6 dBs±0.1 dB	◐RV305 (D, 7)
	LINE INPUT2: TP503 (H, 5) のレベル –6 dBs±0.1 dB	◐RV505 (G, 5)
ステップ2 ステップ1に同じ	LINE INPUT1: オーディオアナライザ (デジタルレベル測定) の指示レベル –20 dBFS	◐RV101 (E, 4)
	LINE INPUT2: オーディオアナライザ (デジタルレベル測定) の指示レベル –20 dBFS	◐RV201 (J, 4)
ステップ3 下記設定以外はステップ1に同じ • LINEスイッチ (DMA-2000) をOFFにする。 • D. OUT端子 (DMA-2000) にデジタルメータ (DMX-E2000, DMU-30等) を接続する。	LINE INPUT1: デジタルメータ (DMX-E2000, DMU-30等) のオフセットレベル (インジゲータレベル) が最小	◐RV102 (F, 2)
	LINE INPUT2: デジタルメータ (DMX-E2000, DMU-30等) のオフセットレベル (インジゲータレベル) が最小	◐RV202 (J, 2)
ステップ4 下記設定以外はステップ1に同じ • オシレータ (オーディオアナライザ) よりLINE INPUT1またはLINE INPUT2端子に、1 kHz, 9 dBsの信号を入力する。(LINEスイッチ: OFF)	LINE INPUT1: DMA-2000 (フロントパネル) のピークインジケータLEDが点灯し始める。	◐RV306 (F, 6)
	LINE INPUT2: DMA-2000 (フロントパネル) のピークインジケータLEDが点灯し始める	◐RV506 (J, 6)

4-2-2. MIC INPUT, CMR (同相成分除去)、レベル調整

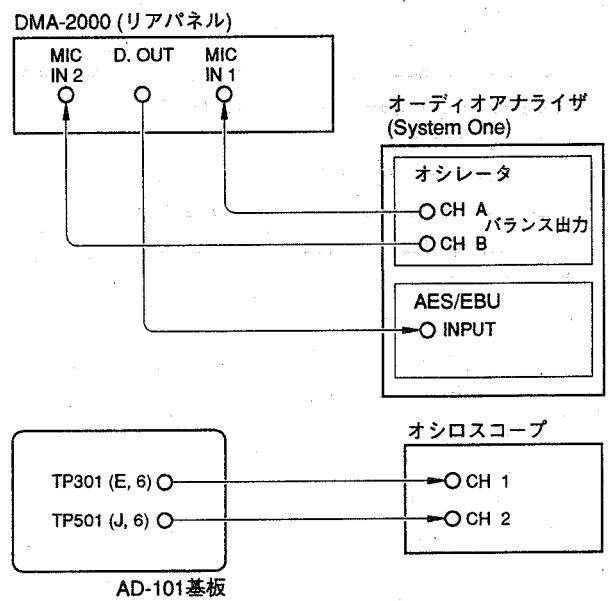
使用機器

オーディオアナライザ (System One)
オシロスコープ

スイッチ、コントロール設定

"4-1-2. スイッチ、コントロール初期設定" に同じ

接続



調整

調整時の状態	規格	調整箇所 (AD-101基板)
ステップ1 • D. OUT端子 (DMA-2000) の出力信号を AES/EBU INPUT端子 (オーディオアナライザ) に入力する。 • オシレータ (オーディオアナライザ) より MIC INPUT1またはMIC INPUT2端子に、60 Hz, –60 dBsの同相信号を入力する。(HOT, COLD端子に同じ信号を入力する。) • オシロスコープを INPUT1: TP301 (E, 6) または INPUT2: TP501 (J, 6) に接続する。	MIC INPUT1: オシロスコープ (TP301の出力波形) の出力波形の振幅が最小	⊘RV301 (F, 7)
	MIC INPUT2: オシロスコープ (TP501の出力波形) の出力波形の振幅が最小	⊘RV501 (J, 7)
ステップ2 下記設定以外はステップ1に同じ • オシレータ (オーディオアナライザ) より、MIC INPUT1またはMIC INPUT2端子に、1 kHz, –60 dBsの同相信号を入力する。	MIC INPUT1: オシロスコープ (TP301の出力波形) の出力波形の振幅が最小	⊘RV302 (F, 7)
	MIC INPUT2: オシロスコープ (TP501の出力波形) の出力波形の振幅が最小	⊘RV502 (J, 7)
ステップ3 • オシレータ (オーディオアナライザ) より、MIC INPUT1またはINPUT2端子に、1 kHz, –60 dBsの信号 (バランス信号) を入力する。 • LINEスイッチ (DMA-2000) をONにする。	MIC INPUT1: オーディオアナライザ (デジタルレベル測定) の指示レベル –20 dBFS	⊘RV303 (F, 7)
	MIC INPUT2: オーディオアナライザ (デジタルレベル測定) の指示レベル –20 dBFS	⊘RV503 (J, 7)

4-2-3. DA変換レベル、LINE OUTPUTレベル調整

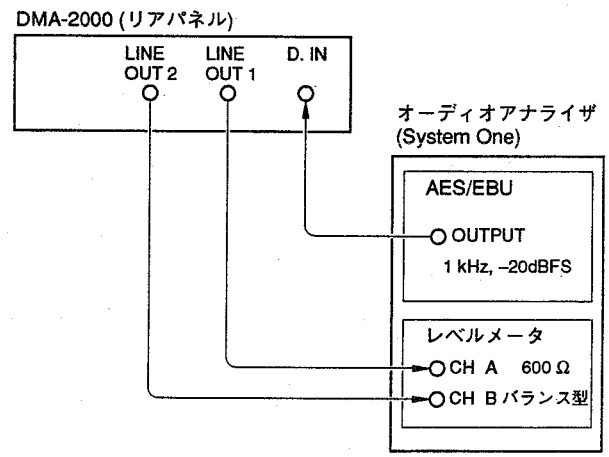
使用機器

オーディオアナライザ (System One)

スイッチ、コントロール設定

"スイッチ、コントロール初期設定" に同じ

接続



調整

調整時の状態	規格	調整箇所 (AD-101基板)
• D. IN端子 (DMA-2000) にAES/EBU OUTPUT端子 (オーディオアナライザ) の出力信号 (1 kHz, –20 dBFS) を入力する。必要に応じて、WORD SYNC INPUTにREF信号を入力する。 • レベルメータ (オーディオアナライザ) をLINE OUT1またはLINE OUT2端子に接続する。	LINE OUT1: LINE OUT1の出力レベル +4 dBs±0.1 dB	◐RV1501 (C, 2)
	LINE OUT2: LINE OUT2の出力レベル +4 dBs±0.1 dB	◐RV1521 (A, 2)

SECTION 2
INSTALLATION

2-1. POWER SUPPLY

2-1-1. Capacity of AC Power Supply

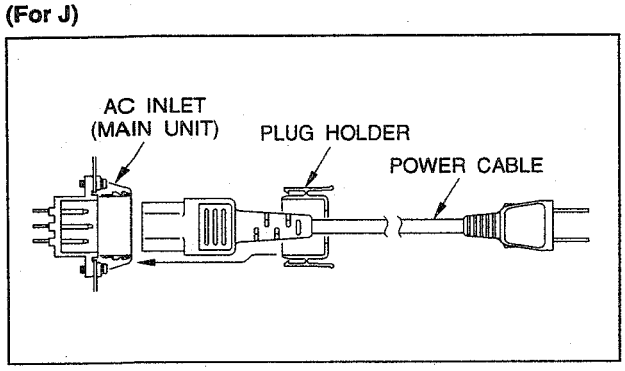
Power line voltage : AC100 V (For J)
AC120 V (For UC)
AC220 V to 240 V (For EK)

Power line frequency : 50/60 Hz

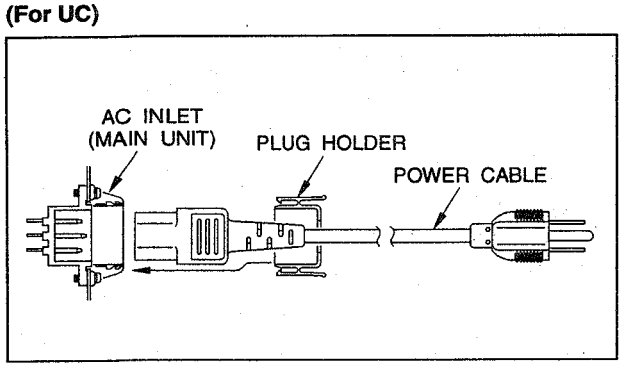
Power/Current consumption : 30 W (For J,UC)
0.3 A (For EK)

2-1-2. Power Cord

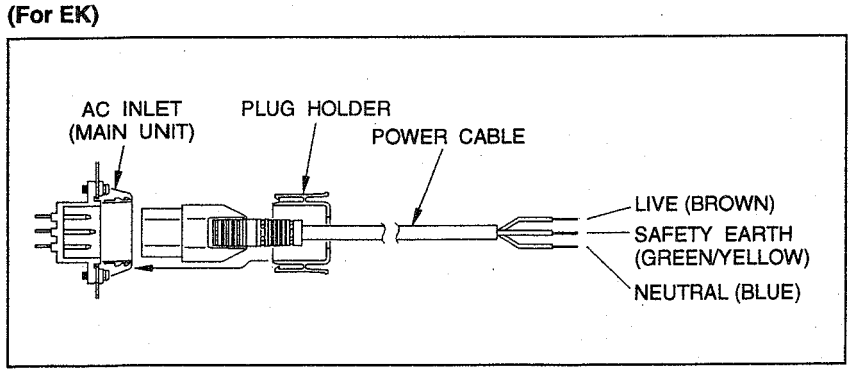
(For J)



(For UC)



(For EK)



2-2. INSTALLATION ENVIRONMENT

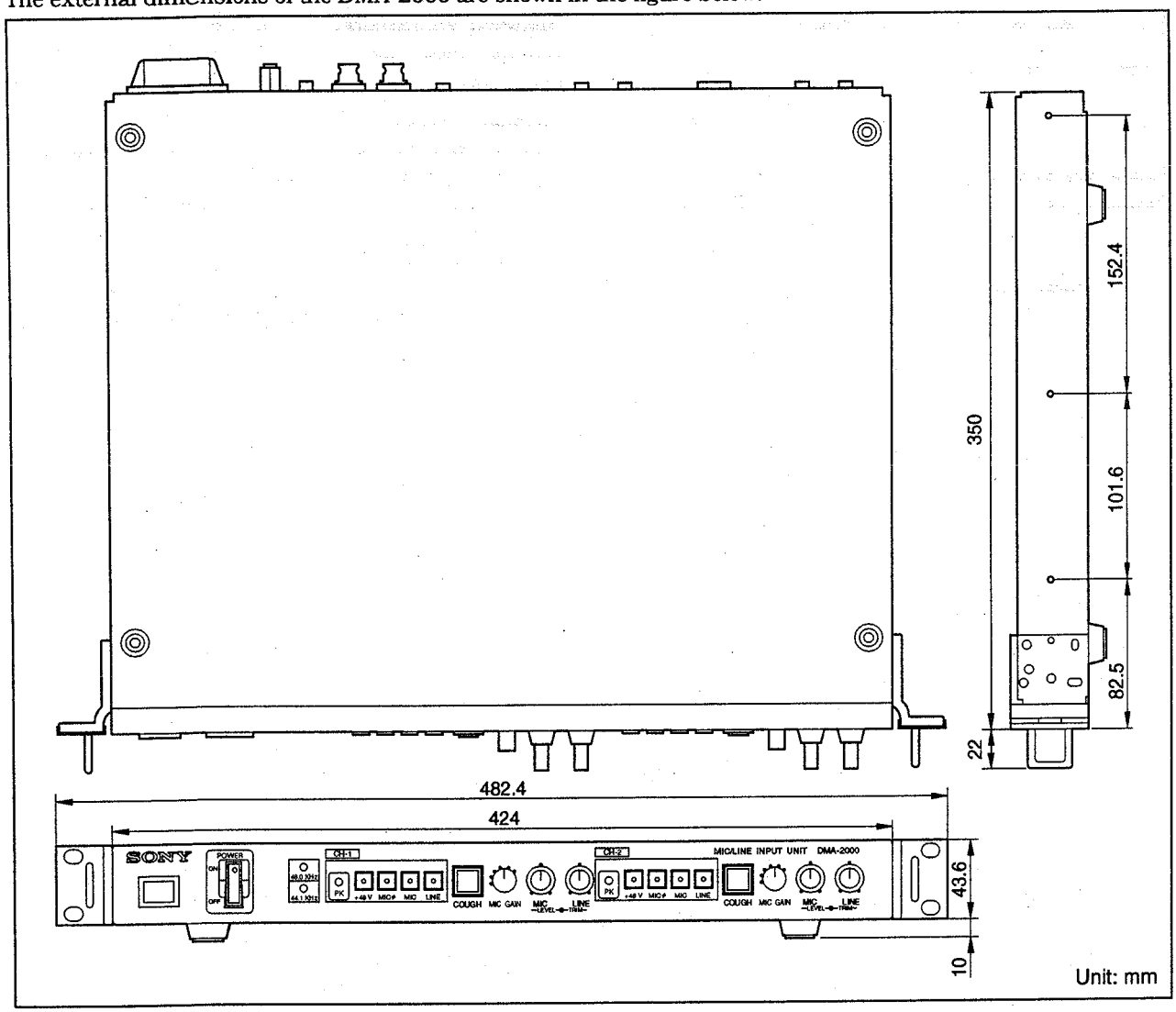
Operating temperature: 0 °C to +40 °C
Storage temperature : –20 °C to +60 °C
Mass (weight) : 7 kg

Location to avoid

- Areas where the unit will be exposed to direct sunlight of any other strong lights.
- Dusty areas or areas where it is subject to vibration.
- Areas with strong electric or magnetic fields.
- Areas near heat sources.
- Areas where is subjected to electricity noise.
- Areas where is subjected to static electricity noise.

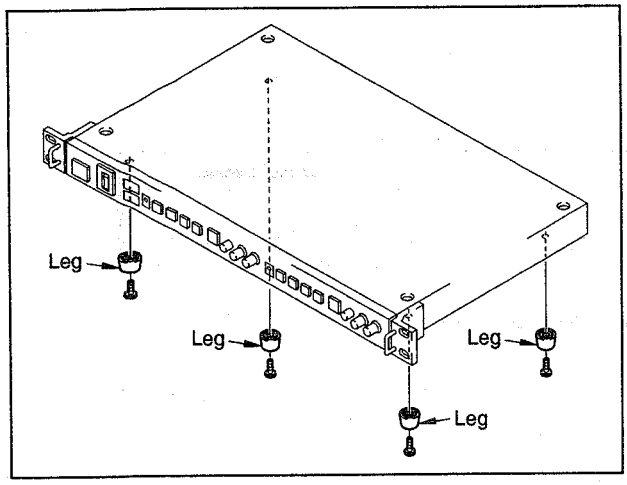
2-3. EXTERNAL DIMENSIONS

The external dimensions of the DMA-2000 are shown in the figure below.



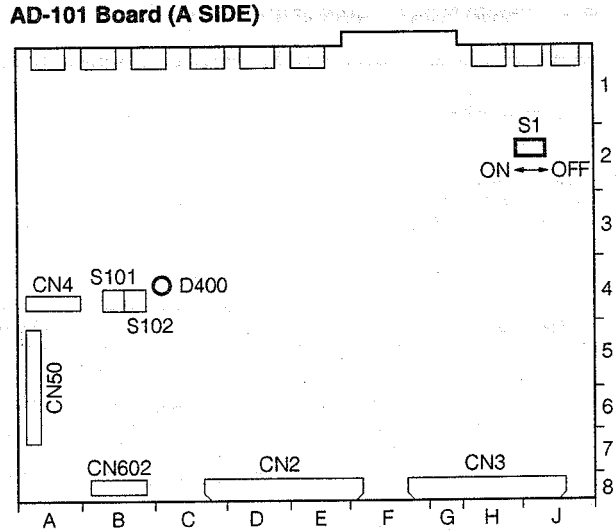
2-4. RACK MOUNTING

DMA-2000 can be mounted in an EIA 19-inch standard rack.
It is recommended to use the rack mounting rail.
When DMA-2000 is mounted in the 19-inch standard rack, remove the four legs from the bottom of the unit.



2-5. SETTING OF SWITCHES/LED ON THE BOARD

AD-101 Board (A SIDE)



Switch

S1: Pre-emphasis Setting Switch of AD Converter
Factory Setting: OFF

S101, 102:
Source ID Inserter Setting Rotary Switches
Factory Setting: S101: "0"
S102: "0"

S101/102 setting	S101	S102
0	AD_	—
1	AF_	1
2	AIR	2
3	ATR	3
4	CD_	4
5	EXT	5
6	HA_	6
7	MIC	7
8	MX_	8
9	STL	9
A	TR_	A
B	TT_	B
C	UTL	C
D	VTR	D
E	WR_	E
F	___	F

NOTE: "_" is blank space.

LED

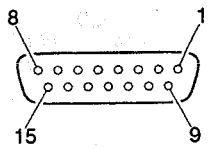
D400: PLL UNLOCK Indicator
When WORD REF signal input: OFF

2-6. INPUT/OUTPUT INTERFACE

2-6-1. Input/Output Signal of the Connector

The Input/Output signals of the connector panel are as follows.

- OUTSIDE VIEW -



PIN No.	I/O	Signal	Signal Level
1	IN	CONT COUGH 1 (OPEN: MIC OFF, CLOSE: MIC ON)	CLOSURE TO GND
2	IN	CONT REV TB 1 (OPEN: REV TB 1 ON, CLOSE: REV TB 1 OFF)	CLOSURE TO GND
3	—	—	—
4	—	GND	—
5, 6	N. C.	—	—
7	IN	CONT COUGH 2	CLOSURE TO GND
8	IN	CONT REV TB 2	CLOSURE TO GND
9	N. C.	—	—
10	—	GND	—
11 to 15	N. C.	—	—

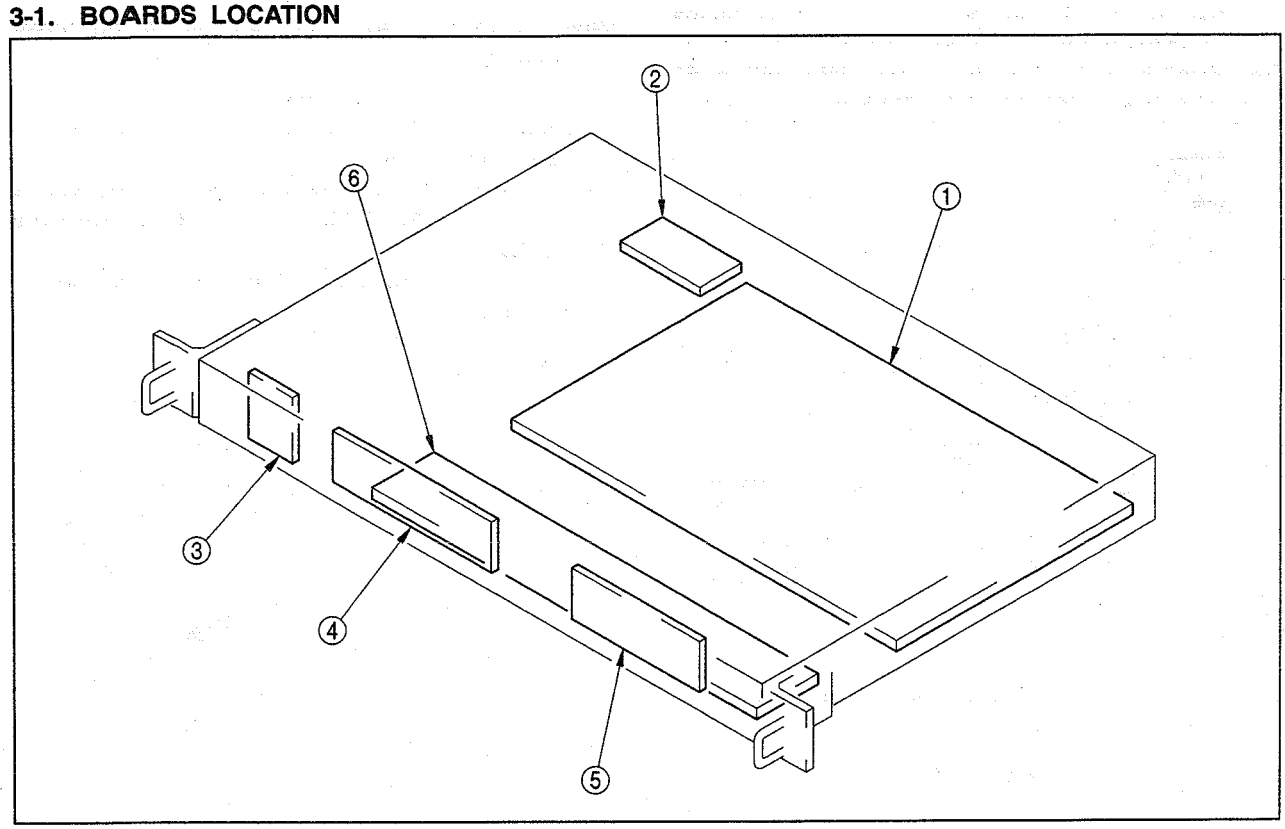
2-6-2. Connectors/Cables For Connection

When cables are going to be connected to the various connectors on the connector panel, use the connectors/cables equivalent at the ends of cables shown below.

DMA-2000 side connector		Matching connector/Cables	
Used for	Type	Type	Sony Part No.
D. IN LINE IN 1, 2 MIC IN 1, 2	XLR, 3PIN, FEMALE	XLR, 3PIN, MALE	1-508-083-11 (CANNON XLR-3-11C or equivalent)
D. OUT LINE OUT 1, 2 REV TB	XLR, 3PIN, MALE	XLR, 3PIN, FEMALE	1-508-084-11 (CANNON XLR-3-12C or equivalent)
CONTROL	D-SUB, 15PIN, FEMALE	D-SUB, 15PIN, MALE	1-566-441-11
WORD REF IN WORD REF OUT	BNC	BNC	

SECTION 3
SERVICE OVERVIEW

3-1. BOARDS LOCATION



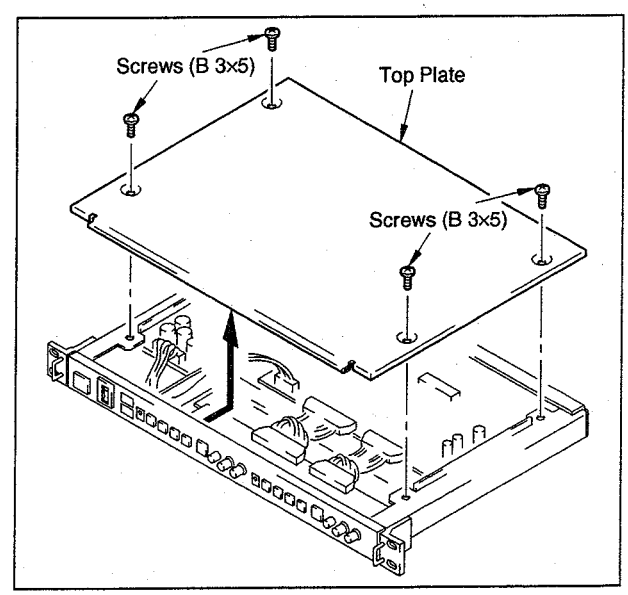
① AD-101: AD/DA Converter Board
② CN-942: BNC Connector Board
③ DP-131: LED Board
④ SW-645: Switch Board
⑤ SW-669: Switch Board
⑥ VR-176: Volume Board

3-2. CABINET REMOVAL

Note: Turn off the power switch of DMA-2000 before removal.

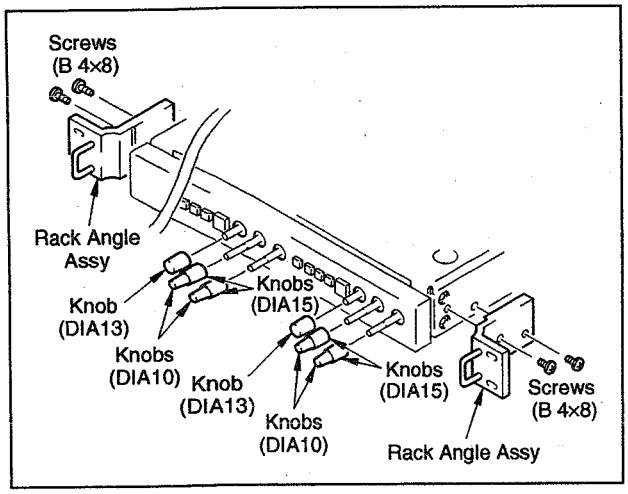
3-2-1. Top Plate Removal

Remove the four fixing screws (B 3×5), then remove the top plate.

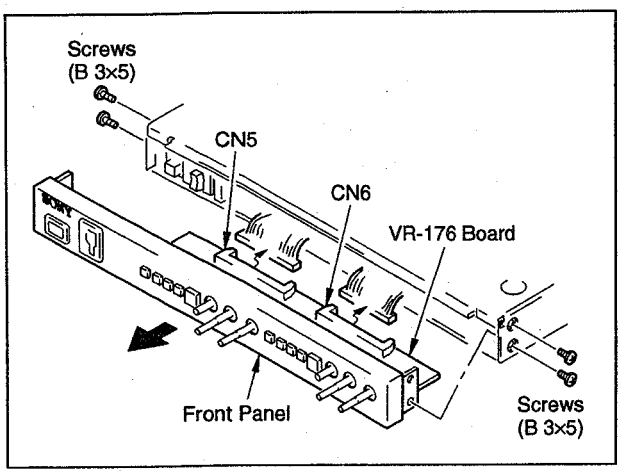


3-2-2. Front Panel Removal

(1) Remove the two knobs (DIA13), the four knobs (DIA15) and the four knobs (DIA10).
(2) Remove the four screws (B 4×8), then remove the Rack Angle Assy both left and right.



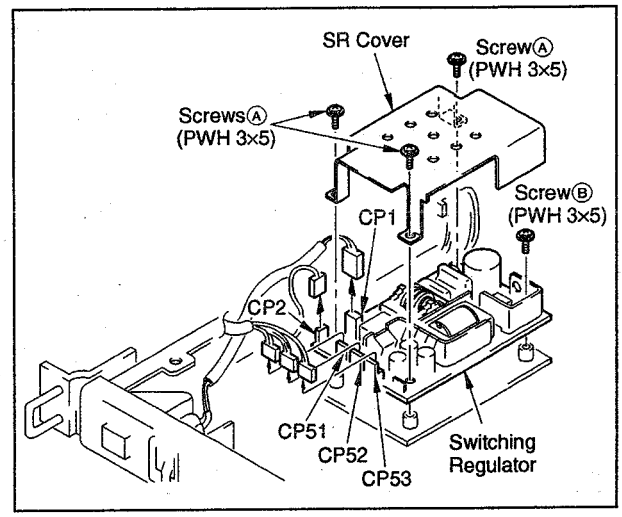
(3) Remove the four screws (B 3×5), then pull out the front panel in the direction of arrow.
(4) Disconnect the harness from the two connectors CN5 and CN6 of the VR-176 board.



3-3. Switching Regulator Removal

Note: Turn off the power switch and pull out the power cord.

(1) Remove the top plate. (See section 3-2-1.)
(2) Remove the three screws Ⓐ (PWH 3×5), then remove the SR Cover.
(3) Disconnect the harness from the five connectors CP1, CP2, CP51, CP52 and CP53 of the switching regulator.
(4) Remove the fixing screw Ⓑ (PWH 3×5) of the switching regulator.



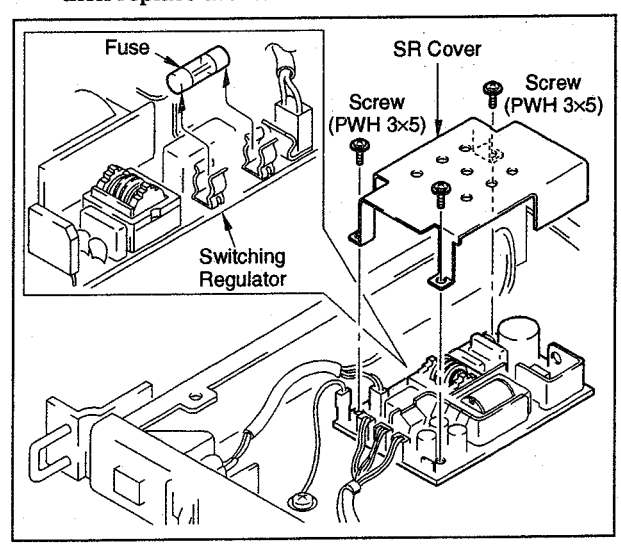
Fuse Replacement

The fuse of switching regulator replace as follows.

Parts Required

• FUSE: Sony part No. 1-576-133-11

(1) Remove the top plate. (See section 3-2-1.)
(2) Remove the three screws (PWH 3×5) and SR Cover, then replace the fuse.



3-4. NOTES ON REPAIR PARTS

3-4-1. Notes on Repair Parts

(1) Safety Related Components Warning

The ⚠ marked components on the schematic diagrams, exploded views and electrical spare parts list are critical to safety. Replace only with the same components as specified.

(2) Standardization of Parts

Replacement parts supplied from the Sony Parts Center will sometimes have a different shape and outside view from the parts which are used in the unit.

This is due to accommodating improved parts and/or engineering changes or standardization of genuine parts.

This manual's exploded views and electrical spare parts list indicate the part numbers of current standardized genuine parts.

(3) Change of Parts

Regarding engineering parts changes, refer to "Changed Parts."

(4) Stock of Parts

The parts marked with "s" in the SP (Supply Code) column of the exploded views and electrical spare parts list are normally stocked for replacement purposes.

The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" with be processed, but allow for additional time for delivery.

(5) Units for Capacitors, Inductors and Resistors

The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors : μF
Resistors : Ω

3-4-2. Replacement Procedure for Chip Parts

Required Tools:

Soldering iron : 20W
If possible, use a soldering-iron tip heat-controller set to 270±10°C.

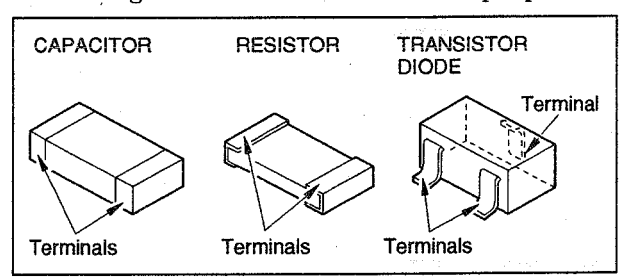
Braided wire (Desoldering metal braid) :
SOLDER TAUL or equivalent
Sony part No. 7-641-300-81

Solder : 0.6 mm dia. is recommended.

Tweezers

Soldering Conditions:

Soldering iron temperature : 270±10°C
Soldering time : 2 seconds per pin



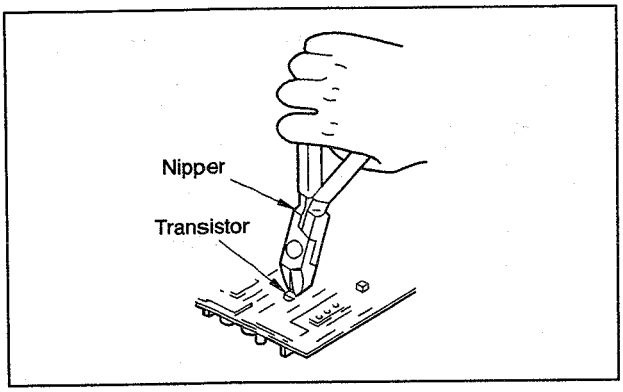
Replacement of Resistor and Capacitor

(1) Place the soldering-iron tip onto the chip part and heat it up until the solder is melted.
When the solder is melted, slide the chip part aside.
(2) Make sure that there is no pattern peeling, damage and/or bridge around the desoldering position.
(3) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
(4) Place new chip part in the desired position and solder both ends.

Note: Do not use a chip part again once it has been removed.

Replacement of Transistors and Diodes

(1) Cut the terminals of the chip part with nippers.
(2) Remove the cut leads as above.
(3) Make sure that there is no pattern peeling, damage and/or bridge around the desoldering positions.
(4) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
(5) Place new chip part in the desired position and solder the terminals.



Replacement of ICs

(1) Using the braided wire (desoldering metal braid), "SOLDER TAUL" Sony Part No. 7-641-300-81, remove the solder around the pins of the IC-chip to be removed.
(2) While heating up the pins, remove them one by one using sharp-pointed tweezers.
(3) Make sure that there is no pattern peeling, damage and/or bridge around t he desoldering position.
(4) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
(5) Place new chip part in the desired position and solder the pins.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20V AC range are suitable. (See Fig. A)

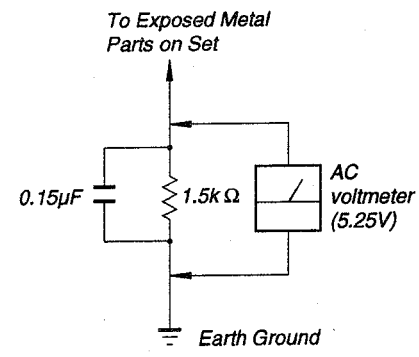


Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 4
ELECTRICAL ALIGNMENT

This section explains the electrical adjustment required when following AD-101 board is repaired or maintained.

4-1. EQUIPMENT REQUIRED/TOOL

Equipment Required

Name	Minimum Specifications	Model
Audio analyzer (Level meter, Oscillator)	AES/EBU Format Signal Input/Output Interface included	AUDIO PRECISION System One or equivalent
Oscilloscope	Frequency range: DC to 100 MHz 2 develop Sensitivity : More than 5 mV/div	—
Digital meter	Which can monitor the AES/EBU Format signal	SONY DMX-E2000, DMU-30 and others

Tool

Name	Part No.
Adjustment screwdriver (2.0 mm)	7-770-731-03

4-2. ADJUSTMENT (AD-101 Board)

Preparation

Switch and Control Initial Setting

Switch

FS : 48 kHz
+48 V : OFF
MIC : OFF
MIC PHASE : OFF
LINE : ON
COUGH : ON

Control

MIC GAIN : 60 dB
MIC LEVEL : MAX
MIC TRIM : CENTER
LINE LEVEL: MAX
LINE TRIM : CENTER

AD-101 Board

S1 (EMPHASIS) Switch : OFF
S101 Switch : "0"
S102 Switch : "0"

4-2-1. LINE INPUT, AD Conversion Level, Offset Level Adjustment

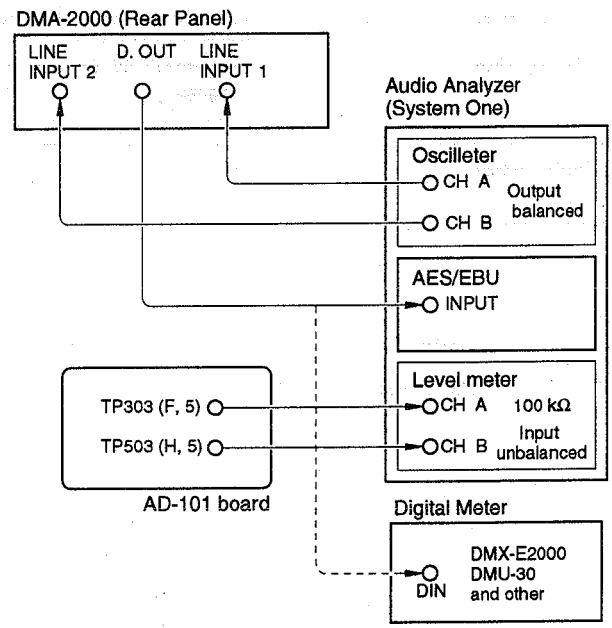
Equipment Required

Audio analyzer (System One)
Digital meter (DMX-E2000, DMU-30 and other)

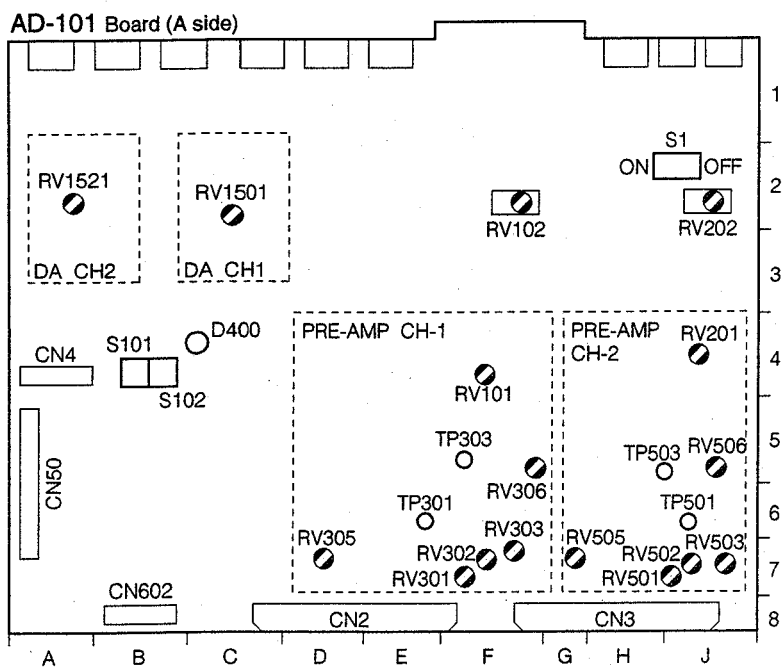
Switch and Control Settings

Same as "Switch and Control Initial Settings"

Connector



Adjustment location



Adjustment

Adjustment Conditions	Specifications	Adjustment location (AD-101 Board)
STEP 1 • Input the output signal of D. OUT connector (DMA-2000) to the AES/EBU INPUT connector (Audio analyzer). • Input 1 kHz, 4 dBs (0 dBs = 0.775 Vrms) signal from the Oscillator (Audio analyzer) to LINE INPUT1 connector or LINE INPUT2 connector. • Connect the level meter (Audio analyzer) INPUT1: TP303 (F, 5) or INPUT2: TP503 (H, 5).	LINE INPUT1: TP303 (F, 5) Level –6 dBs±0.1 dB	⊘RV305 (D, 7)
	LINE INPUT2: TP503 (H, 5) Level –6 dBs±0.1 dB	⊘RV505 (G, 5)
STEP 2 Same as STEP 1	LINE INPUT1: Indication level of Audio analyzer (Digital level measurement) –20 dBFS	⊘RV101 (E, 4)
	LINE INPUT2: Indication level of Audio analyzer (Digital level measurement) –20 dBFS	⊘RV201 (J, 4)
STEP 3 Except for the setting as follows, same as STEP 1. • LINE Switch (DMA-2000) to OFF. • Connect the D. OUT connector (DMA-2000) to Digital meter (DMX-E2000, DMU-30 and other).	LINE INPUT1: It is minimum to offset level (indicator level) for digital meter (DMX-E2000, DMU-30 and other).	⊘RV102 (F, 2)
	LINE INPUT2: It is minumum to offset level (indicator level) for digital meter (DMX-E2000, DMU-30 and other).	⊘RV202 (J, 2)
STEP 4 Except for the setting as follows, same as STEP 1. • Input 1 kHz, 9 dBs signal from the Oscillator (Audio analyzer) to LINE INPUT 1 connector or LINE INPUT 2 connector (LINE Switch: OFF).	LINE INPUT1: The peak indicator LED to starting light for DMA-2000 (front panel).	⊘RV306 (F, 6)
	LINE INPUT2: The peak indicator LED to starting light for DMA-2000 (front panel).	⊘RV506 (J, 6)

4-2-2. MIC INPUT, CMR (Common Mode Rejection), Level Adjustment

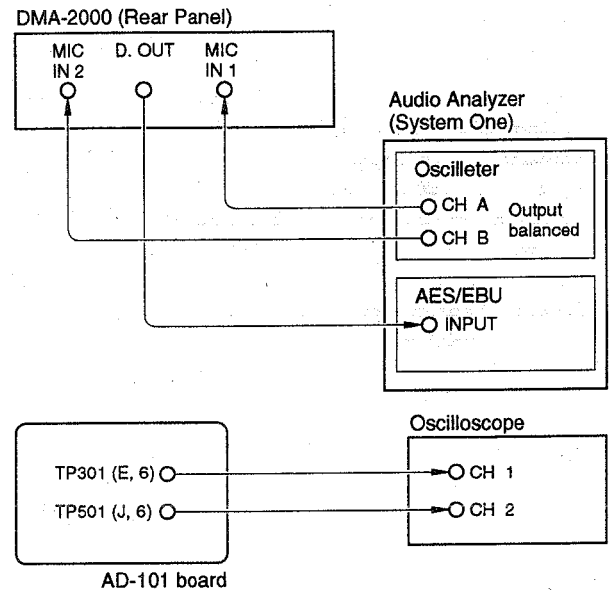
Equipment Required

Audio analyzer (System One)
Oscilloscope

Switch and Control Settings

Same as "Switch and Control Initial Settings"

Connector



Adjustment

Adjustment Conditions	Specifications	Adjustment location (AD-101 board)
STEP 1 • Input the output signal of D. OUT connector (DMA-2000) to the AES/EBU INPUT connector (Audio analyzer). • Input 60 Hz, –60 dBs the inphase signal from the Oscillator (Audio analyzer) to MIC INPUT1 connector or MIC INPUT2 connector. (Input as common mode signal to HOT, COLD terminal.) • Connect the Oscilloscope INPUT1: TP301 (E, 6) or INPUT2: TP501 (J, 6).	MIC INPUT1: Adjust the amplitude of oscilloscope waveform (TP301 output waveform) is minimum	⊘RV301 (F, 7)
	MIC INPUT2: Adjust the amplitude of oscilloscope waveform (TP501 output waveform) is minimum	⊘RV501 (J, 7)
STEP 2 Except for the setting as follows, same as STEP 1. • Input 1 kHz, –60 dBs the inphase signal from the Oscillator (Audio analyzer) to MIC INPUT1 connector or MIC INPUT2 connector.	MIC INPUT1: Adjust the amplitude of oscilloscope waveform (TP301 output waveform) is minimum	⊘RV302 (F, 7)
	MIC INPUT2: Adjust the amplitude of oscilloscope waveform (TP501 output waveform) is minimum	⊘RV502 (J, 7)
STEP 3 • Input 1 kHz, –60 dBs signal (Balanced signal) from the Oscillator (Audio analyzer) to MIC INPUT1 connector or MIC INPUT2 connector. • LINE switch (DMA-2000) to ON.	MIC INPUT1: The indication level of audio analyzer (Digital level measurement) –20 dBFS	⊘RV303 (F, 7)
	MIC INPUT2: The indication level of audio analyzer (Digital level measurement) –20 dBFS	⊘RV503 (J, 7)

4-2-3. DA Conversion Level, LINE OUTPUT Level Adjustment

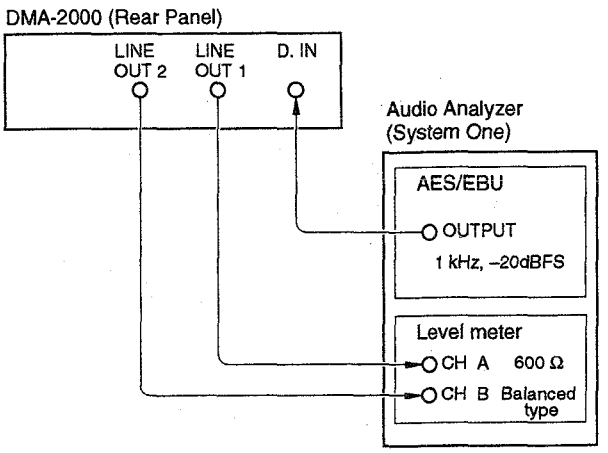
Equipment Required

Audio analyzer (System One)

Switch and Control Settings

Same as "Switch and Control Initial Settings"

Connector

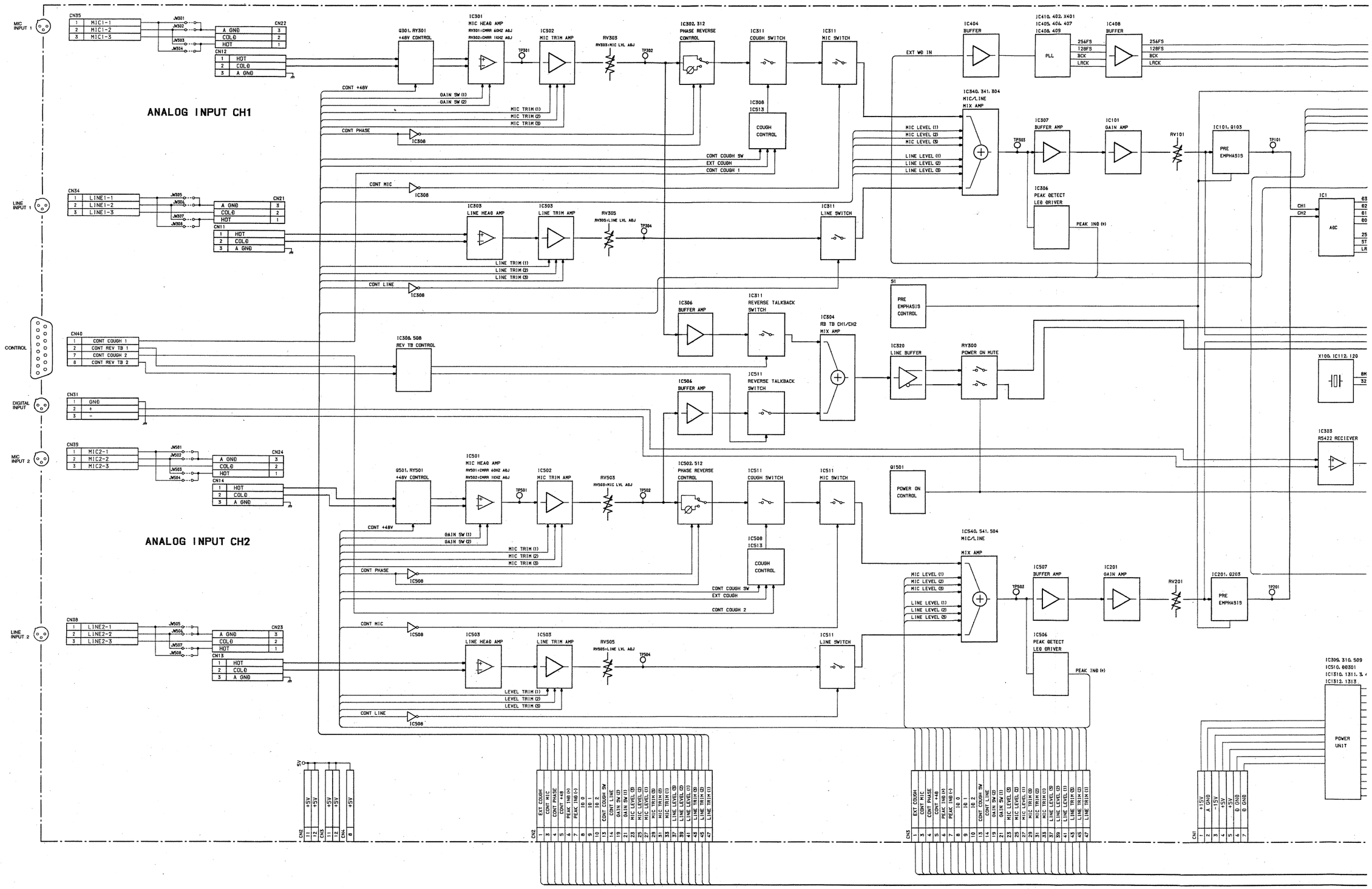


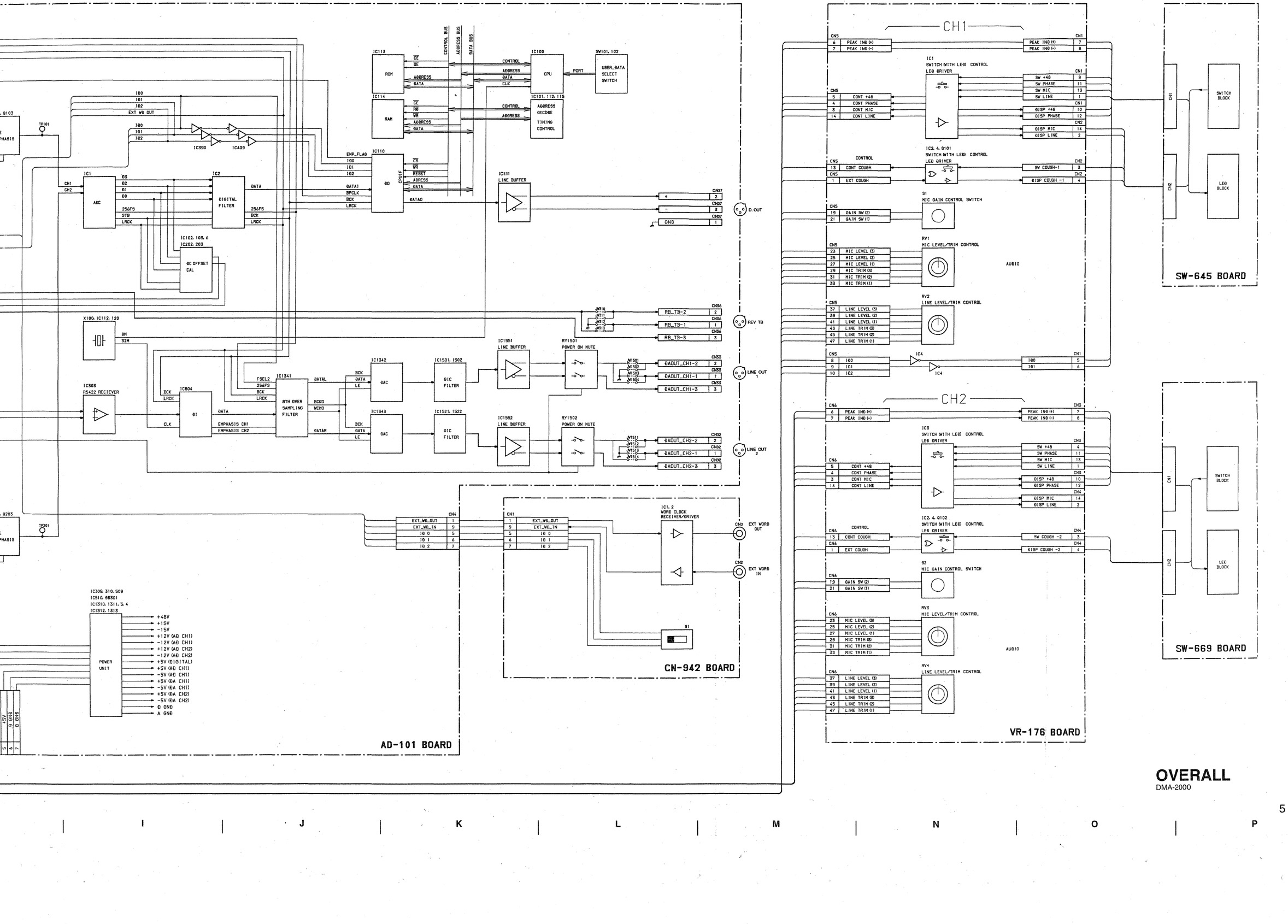
Adjustment

Adjustment Conditions	Specifications	Adjustment location (AD-101 board)
• Input the output signal of AES/EBU OUTPUT connector (Audio analyzer) to D. IN connector (DMA-2000). Necessary need, input REF signal to WORD SYNC INPUT. • Connect the level meter (Audio analyzer) to LINE OUT connector or LINE OUT2 connector.	LINE OUT1: LINE OUT1 Output level +4 dBs±0.1 dB	⊘RV1501 (C, 2)
	LINE OUT2: LINE OUT2 Output level +4 dBs±0.1 dB	⊘RV1521 (A, 2)

SECTION 5
BLOCK DIAGRAM AND CIRCUIT DESCRIPTIONS

OVERALL


ANALOG INPUT CH1
ANALOG INPUT CH2
MIC INPUT 1
LINE INPUT 1
CONTROL
DIGITAL INPUT
MIC INPUT 2
LINE INPUT 2
CN35 MIC1-1 MIC1-2 MIC1-3
CN34 LINE1-1 LINE1-2 LINE1-3
CN40 CONT COUGH 1 CONT REV TB 1 CONT COUGH 2 CONT REV TB 2
CN31 GND + -
CN39 MIC2-1 MIC2-2 MIC2-3
CN38 LINE2-1 LINE2-2 LINE2-3
CN22 CN21 CN24 CN23 CN12 CN11 CN14 CN13
A GND COLD HOT
Q301, RY301 +48V CONTROL
Q501, RY501 +48V CONTROL
IC301 MIC HEAD AMP
IC501 MIC HEAD AMP
IC303 LINE HEAD AMP
IC302 MIC TRIM AMP
IC502 MIC TRIM AMP
IC503 LINE TRIM AMP
RV303 MIC LVL ADJ
RV503 MIC LVL ADJ
RV305 LINE LVL ADJ
RV505 LINE LVL ADJ
IC302, 312 PHASE REVERSE CONTROL
IC502, 512 PHASE REVERSE CONTROL
IC311 COUGH SWITCH
IC511 COUGH SWITCH
IC311 MIC SWITCH
IC511 MIC SWITCH
IC511 LINE SWITCH
IC308 IC513 COUGH CONTROL
IC508 IC513 COUGH CONTROL
IC308, 508 REV TB CONTROL
IC304 BUFFER AMP
IC506 BUFFER AMP
IC311 REVERSE TALKBACK SWITCH
IC511 REVERSE TALKBACK SWITCH
IC304 RB TB CH1/CH2 MIX AMP
IC404 BUFFER
IC408 BUFFER
IC410, 402, X401 IC405, 406, 407 IC408, 409 PLL
256FS 128FS BCK LRCK
EXT WD IN
IC340, 341, 804 MIC/LINE MIX AMP
IC540, 541, 504 MIC/LINE MIX AMP
MIC LEVEL (1) MIC LEVEL (2) MIC LEVEL (3)
LINE LEVEL (1) LINE LEVEL (2) LINE LEVEL (3)
IC307 BUFFER AMP
IC507 BUFFER AMP
IC101 GAIN AMP
IC201 GAIN AMP
RV101
RV201
IC101, 9103 PRE EMPHASIS
IC201, 9203 PRE EMPHASIS
TP101
TP201
TP303
TP503
IC306 PEAK DETECT LED DRIVER
IC506 PEAK DETECT LED DRIVER
PEAK IN0 (+)
S1 PRE EMPHASIS CONTROL
IC320 LINE BUFFER
RY300 POWER ON MUTE
Q1501 POWER ON CONTROL
IC1 A&C
IC303 RS422 RECIEVER
X100, IC112, 120
IC309, 310, 509 IC510, 8030I IC1311, 3, 4 IC1312, 1313
POWER UNIT
CONT +48V
GAIN SW (1)
GAIN SW (2)
MIC TRIM (1)
MIC TRIM (2)
MIC TRIM (3)
CONT PHASE
CONT MIC
CONT LINE
CONT COUGH SW
EXT COUGH
CONT COUGH 1
CONT COUGH 2
LINE TRIM (1)
LINE TRIM (2)
LINE TRIM (3)
LEVEL TRIM (1)
LEVEL TRIM (2)
LEVEL TRIM (3)
CH1
CH2
+15V
-15V
+5V
0 GND
EXT COUGH
CONT MIC
CONT PHASE
CONT +48V
PEAK IN0 (+)
IO 0
IO 1
IO 2
CONT LINE
GAIN SW (1)
MIC LEVEL (3)
MIC LEVEL (2)
MIC LEVEL (1)
MIC TRIM (3)
MIC TRIM (2)
MIC TRIM (1)
LINE LEVEL (3)
LINE LEVEL (2)
LINE LEVEL (1)
LINE TRIM (3)
LINE TRIM (2)
LINE TRIM (1)



OVERALL
DMA-2000

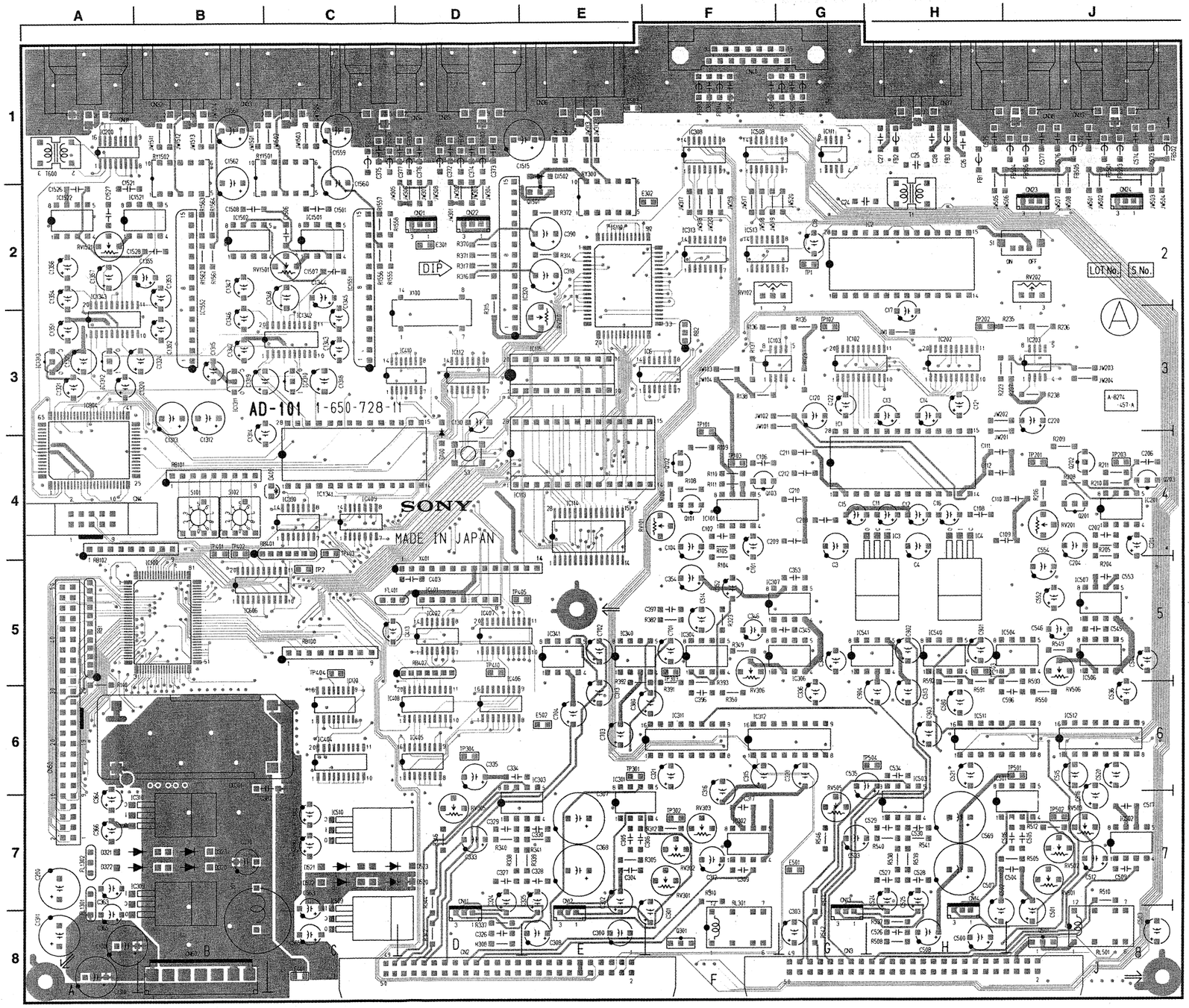
SECTION 6
BOARD LAYOUTS

Board Name	Function	Page
AD-101	AD/DA CONVERTER BOARD	6-2
CN-942	BNC CONNECTOR BOARD	6-5
DP-131	LED BOARD	6-5
SW-645	SWITCH BOARD	6-5
SW-669	SWITCH BOARD	6-5
VR-176	VOLUME CONTROL BOARD	6-4

6 - 1

AD-101 BOARD

A SIDE



1-650-728-11 A SIDE

A Side is the same as Component Side.

DMA-2000

AD-101 (1-650-728-11)

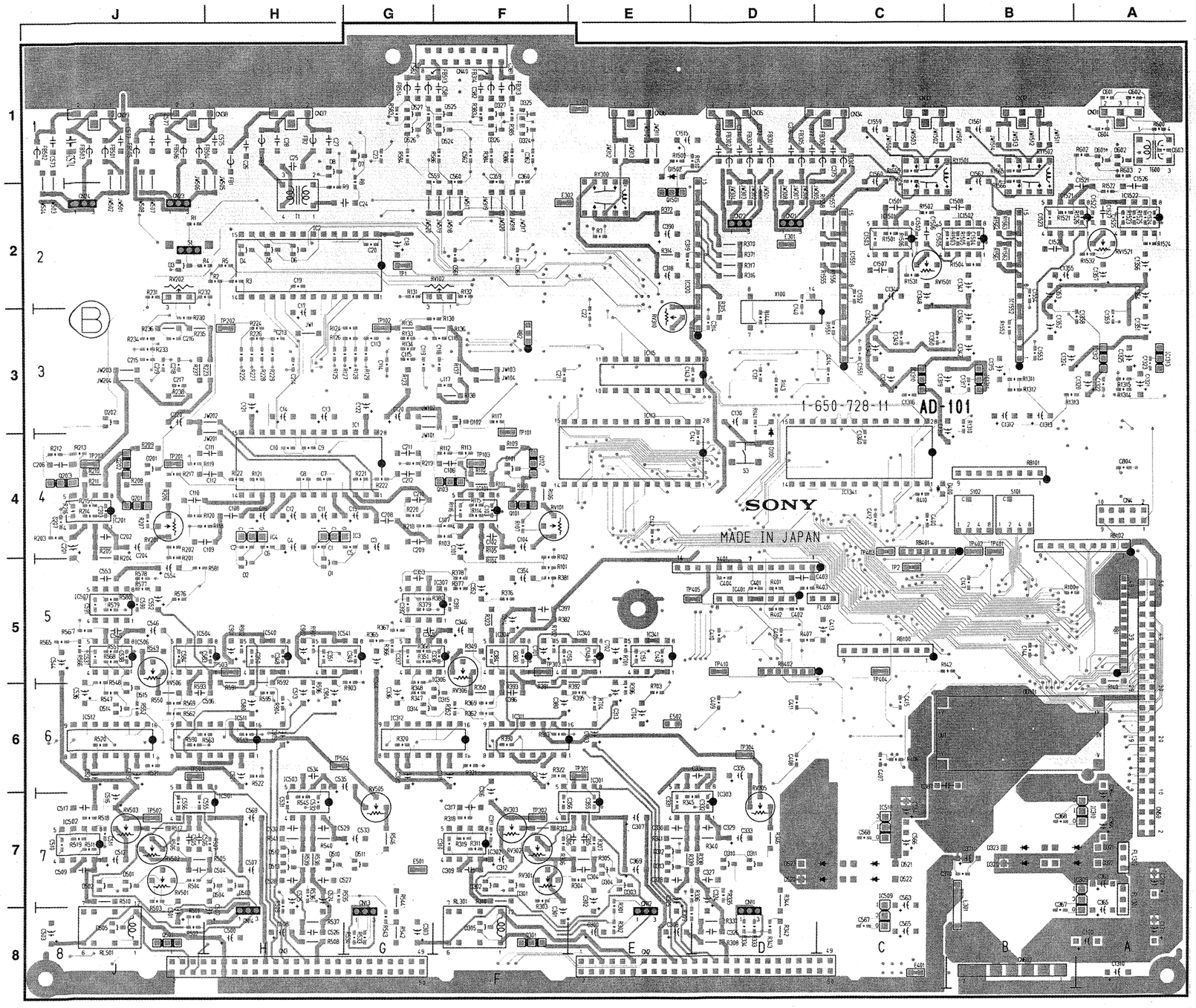
CN2	D-8	E503	E-1	IC1312	A-3
CN3	G-8			IC1313	A-3
CN4	B-4	FB1	H-1	IC1341	C-4
CN11	D-7	FB2	H-1	IC1342	C-3
CN12	E-7	FB3	H-1	IC1343	A-2
CN13	G-7	FB301	D-1	IC1501	C-2
CN14	H-7	FB302	D-1	IC1502	B-2
CN21	D-2	FB303	D-1	IC1521	B-2
CN22	D-2	FB304	C-1	IC1522	A-2
CN23	J-2	FB305	D-1	IC1551	C-2
CN24	J-2	FB306	C-1	IC1552	B-2
CN31	A-1	FB313	F-1		
CN32	B-1	FB314	F-1	Q101	F-4
CN33	B-1	FB501	J-1	Q102	F-4
CN34	D-1	FB502	J-1	Q103	F-4
CN35	D-1	FB503	J-1	Q201	J-4
CN36	E-1	FB504	J-1	Q202	J-4
CN37	H-1	FB505	J-1	Q203	J-4
CN38	J-1	FB506	J-1	Q301	F-8
CN39	J-1	FB513	G-1	Q501	J-8
CN40	F-1	FB514	G-1	Q1501	E-2
CN50	A-6				
CN602	B-8	FL401	C-5	RB1	A-5
CN1113	E-3	FL1301	A-7	RB2	F-3
CN1115	E-3	FL1302	A-7	RB100	C-5
				RB101	B-4
DD301	B-6	IC1	G-3	RB102	A-4
		IC2	H-2	RB401	C-4
* D1	H-5	IC3	H-4	RB402	D-5
* D2	H-5	IC4	H-4		
* D3	J-2	IC6	F-3	RL301	F-7
* D4	H-2	IC100	B-4	RL501	J-8
* D5	H-2	IC101	F-4		
* D6	H-2	IC102	G-3	RV101	E-4
* D7	G-1	IC103	F-3	RV102	F-2
* D8	G-1	IC110	E-2	RV201	J-4
D100	D-4	IC111	G-1	RV202	J-2
* D101	F-4	IC112	D-3	RV301	F-7
* D102	F-3	IC113	E-3	RV302	F-7
* D201	F-4	IC114	E-4	RV303	F-7
* D202	F-3	IC115	E-3	RV305	D-7
* D301	F-7	IC120	C-5	RV306	F-6
* D302	F-7	IC200	A-1	RV310	E-3
* D303	D-7	IC201	J-4	RV501	J-7
* D304	D-7	IC202	H-3	RV502	J-7
* D305	F-8	IC203	J-3	RV503	J-7
* D310	D-7	IC301	E-6	RV505	G-5
* D311	D-7	IC302	F-7	RV506	J-6
* D312	E-7	IC303	E-6	RV1501	C-2
* D313	E-7	IC304	F-5	RV1521	A-2
* D314	G-6	IC306	G-5		
* D315	F-6	IC307	F-5	RY300	E-1
D320	B-7	IC308	F-1	RY1501	C-1
D321	A-7	IC309	B-7	RY1502	B-1
D322	A-7	IC310	B-6		
D323	B-7	IC311	F-6	S1	H-2
* D324	F-1	IC312	F-6	S3	D-4
* D325	F-1	IC313	F-2	S101	B-4
* D326	F-1	IC320	E-2	S102	B-4
* D327	F-1	IC340	E-5		
D400	C-4	IC341	E-5	TP1	F-2
* D501	J-7	IC390	C-4	TP2	C-5
* D502	J-7	IC401	D-7	TP101	F-3
* D503	H-7	IC402	D-7	TP102	C-5
* D504	H-7	IC404	C-6	TP103	F-4
* D505	J-8	IC405	D-6	TP201	J-4
* D510	H-7	IC406	D-5	TP202	H-3
* D511	G-7	IC407	D-5	TP203	J-4
* D512	H-7	IC408	C-6	TP301	E-6
* D513	H-7	IC409	C-4	TP302	F-7
* D514	J-6	IC410	D-3	TP303	F-5
* D515	J-6	IC501	H-6	TP304	D-6
D520	D-7	IC502	J-7	TP401	B-4
D521	C-7	IC503	H-6	TP402	B-4
D522	C-7	IC504	J-5	TP403	C-4
D523	D-7	IC506	J-5	TP404	C-5
* D524	F-1	IC507	J-5	TP405	D-5
* D525	F-1	IC508	F-1	TP410	D-5
* D526	G-1	IC509	C-7	TP501	J-6
* D527	G-1	IC510	C-7	TP502	J-7
* D601	A-1	IC511	H-6	TP503	H-5
* D602	A-1	IC512	J-6	TP504	H-6
D1502	E-1	IC513	F-2		
		IC540	H-5	T1	H-2
E301	D-2	IC541	G-5	T600	A-1
E302	F-2	IC606	B-5		
E401	C-8	IC804	A-3	X100	D-2
E501	G-7	IC1310	C-3	X401	D-4
E502	E-6	IC1311	B-3		

* : SOLDER SIDE

6 - 2

AD-101 BOARD

B SIDE



1-650-728-11 B SIDE

B Side is the same as Solder Side.

DMA-2000

AD-101 (1-650-728-11)

CN2	D-8	E503	E-1	IC1312	A-3
CN3	G-8			IC1313	A-3
CN4	B-4	FB1	H-1	IC1341	C-4
CN11	D-7	FB2	H-1	IC1342	C-3
CN12	E-7	FB3	H-1	IC1343	A-2
CN13	G-7	FB301	D-1	IC1501	C-2
CN14	H-7	FB302	D-1	IC1502	B-2
CN21	D-2	FB303	D-1	IC1521	B-2
CN22	D-2	FB304	C-1	IC1522	A-2
CN23	J-2	FB305	D-1	IC1551	C-2
CN24	J-2	FB306	C-1	IC1552	B-2
CN31	A-1	FB313	F-1		
CN32	B-1	FB314	F-1	Q101	F-4
CN33	B-1	FB501	J-1	Q102	F-4
CN34	D-1	FB502	J-1	Q103	F-4
CN35	D-1	FB503	J-1	Q201	J-4
CN36	E-1	FB504	J-1	Q202	J-4
CN37	H-1	FB505	J-1	Q203	J-4
CN38	J-1	FB506	J-1	Q301	F-8
CN39	J-1	FB513	G-1	Q501	J-8
CN40	F-1	FB514	G-1	Q1501	E-2
CN50	A-6				
CN602	B-8	FL401	C-5	RB1	A-5
CN1113	E-3	FL1301	A-7	RB2	F-3
CN1115	E-3	FL1302	A-7	RB100	C-5
				RB101	B-4
DD301	B-6	IC1	G-3	RB102	A-4
		IC2	H-2	RB401	C-4
* D1	H-5	IC3	H-4	RB402	D-5
* D2	H-5	IC4	H-4		
* D3	J-2	IC6	F-3	RL301	F-7
* D4	H-2	IC100	B-4	RL501	J-8
* D5	H-2	IC101	F-4		
* D6	H-2	IC102	G-3	RV101	E-4
* D7	G-1	IC103	F-3	RV102	F-2
* D8	G-1	IC110	E-2	RV201	J-4
D100	D-4	IC111	G-1	RV202	J-2
* D101	F-4	IC112	D-3	RV301	F-7
* D102	F-3	IC113	E-3	RV302	F-7
* D201	F-4	IC114	E-4	RV303	F-7
* D202	F-3	IC115	E-3	RV305	D-7
* D301	F-7	IC120	C-5	RV306	F-6
* D302	F-7	IC200	A-1	RV310	E-3
* D303	D-7	IC201	J-4	RV501	J-7
* D304	D-7	IC202	H-3	RV502	J-7
* D305	F-8	IC203	J-3	RV503	J-7
* D310	D-7	IC301	E-6	RV505	G-5
* D311	D-7	IC302	F-7	RV506	J-6
* D312	E-7	IC303	E-6	RV1501	C-2
* D313	E-7	IC304	F-5	RV1521	A-2
* D314	G-6	IC306	G-5		
* D315	F-6	IC307	F-5	RY300	E-1
D320	B-7	IC308	F-1	RY1501	C-1
D321	A-7	IC309	B-7	RY1502	B-1
D322	A-7	IC310	B-6		
D323	B-7	IC311	F-6	S1	H-2
* D324	F-1	IC312	F-6	S3	D-4
* D325	F-1	IC313	F-2	S101	B-4
* D326	F-1	IC320	E-2	S102	B-4
* D327	F-1	IC340	E-5		
D400	C-4	IC341	E-5	TP1	F-2
* D501	J-7	IC390	C-4	TP2	C-5
* D502	J-7	IC401	D-7	TP101	F-3
* D503	H-7	IC402	D-7	TP102	C-5
* D504	H-7	IC404	C-6	TP103	F-4
* D505	J-8	IC405	D-6	TP201	J-4
* D510	H-7	IC406	D-5	TP202	H-3
* D511	G-7	IC407	D-5	TP203	J-4
* D512	H-7	IC408	C-6	TP301	E-6
* D513	H-7	IC409	C-4	TP302	F-7
* D514	J-6	IC410	D-3	TP303	F-5
* D515	J-6	IC501	H-6	TP304	D-6
D520	D-7	IC502	J-7	TP401	B-4
D521	C-7	IC503	H-6	TP402	B-4
D522	C-7	IC504	J-5	TP403	C-4
D523	D-7	IC506	J-5	TP404	C-5
* D524	F-1	IC507	J-5	TP405	D-5
* D525	F-1	IC508	F-1	TP410	D-5
* D526	G-1	IC509	C-7	TP501	J-6
* D527	G-1	IC510	C-7	TP502	J-7
* D601	A-1	IC511	H-6	TP503	H-5
* D602	A-1	IC512	J-6	TP504	H-6
D1502	E-1	IC513	F-2		
		IC540	H-5	T1	H-2
E301	D-2	IC541	G-5	T600	A-1
E302	F-2	IC606	B-5		
E401	C-8	IC804	A-3	X100	D-2
E501	G-7	IC1310	C-3	X401	D-4
E502	E-6	IC1311	B-3		

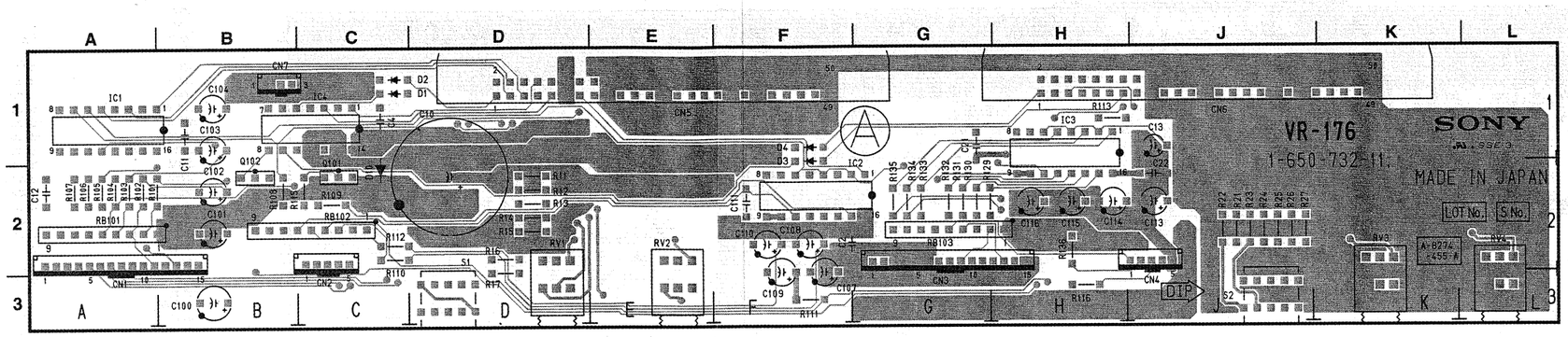
*: SOLDER SIDE

DMA-2000

VR-176 (1-650-732-11)

CN1	A-2
CN2	C-2
CN3	G-3
CN4	J-3
CN5	E-1
CN6	J-1
CN7	B-1
D1	D-1
D2	D-1
D3	F-1
D4	F-1
D10	C-1
IC1	A-1
IC2	G-1
IC3	H-1
IC4	C-1
Q101	C-1
Q102	B-1
RB101	A-2
RB102	C-2
RV103	G-2
RV1	D-2
RV2	E-2
RV3	K-2
RV4	L-2
S1	D-2
S2	J-3

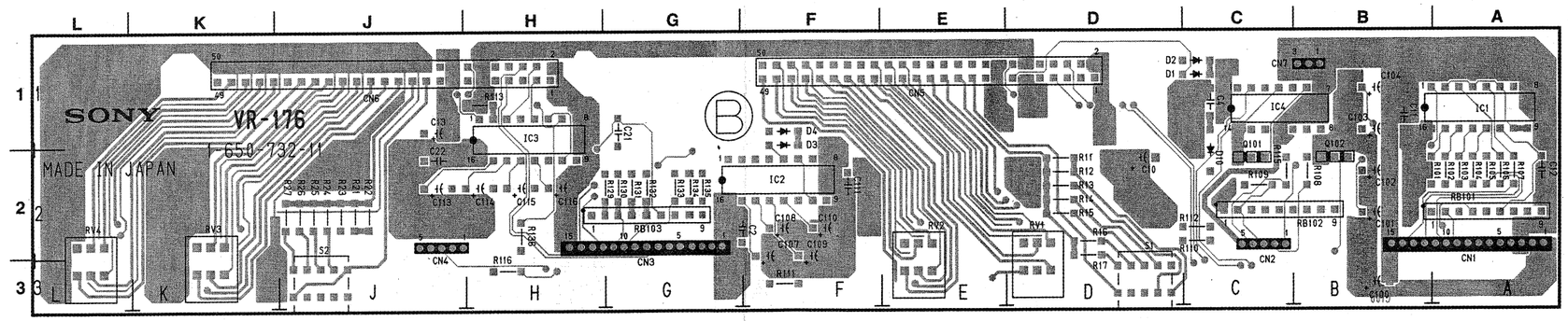
VR-176 BOARD
A SIDE



1-650-732-11 A SIDE

A Side is the same as Component Side.

VR-176 BOARD
B SIDE



1-650-732-11 B SIDE

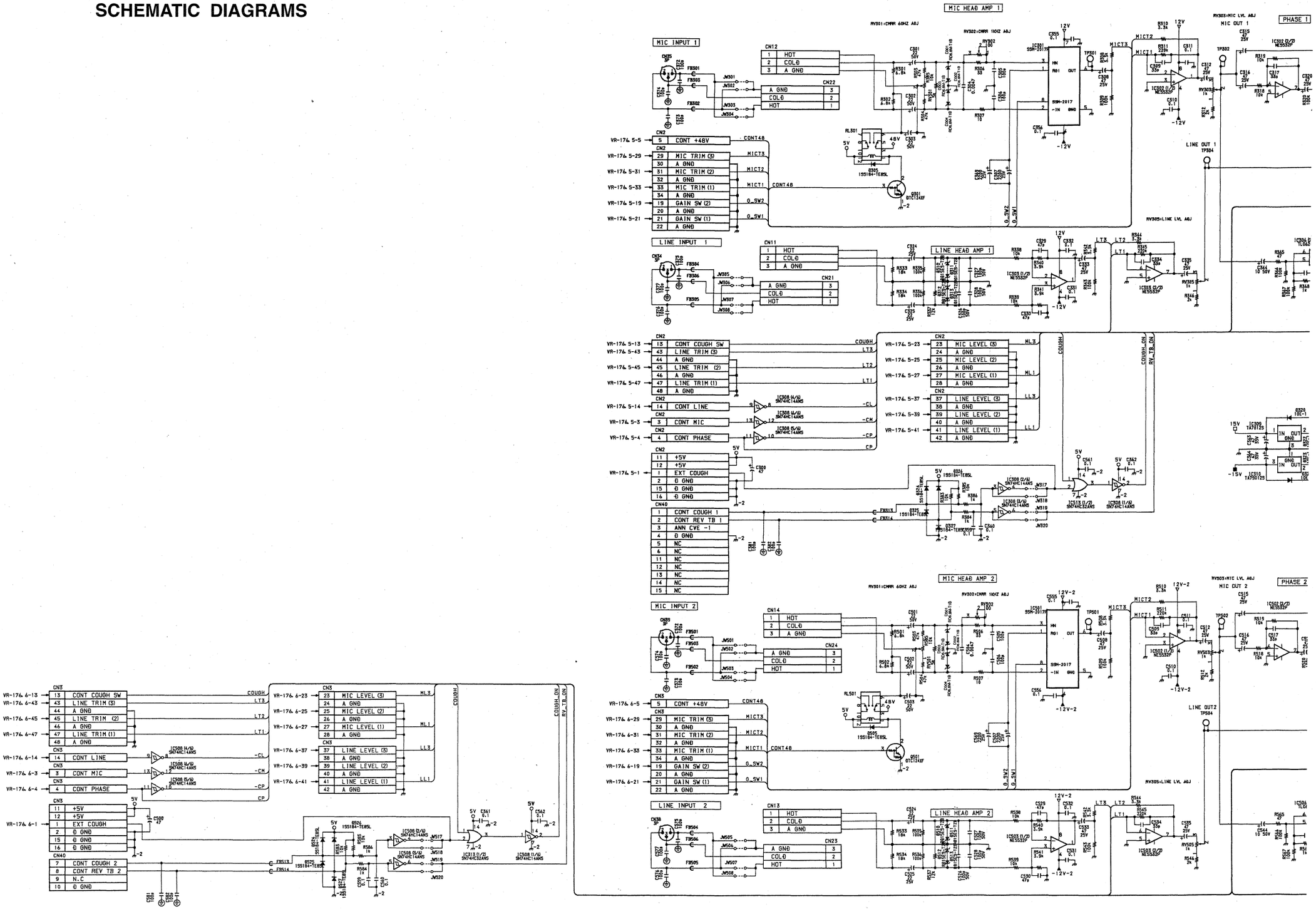
B Side is the same as Solder Side.

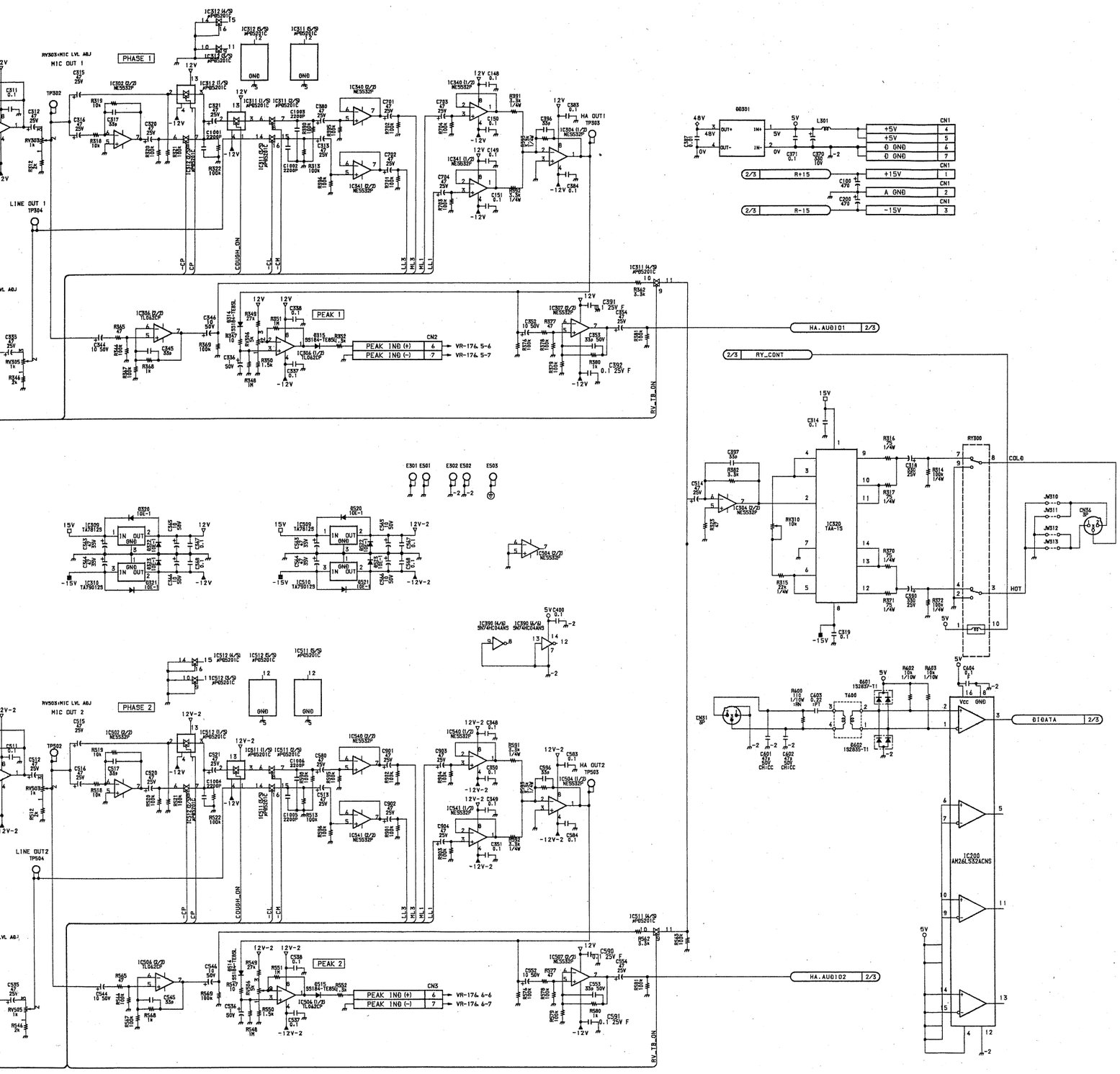
6 - 4

AD-101 (1/3)

SECTION 7
SCHEMATIC DIAGRAMS

AD-101 (1/3)





AD/DA Converter Board

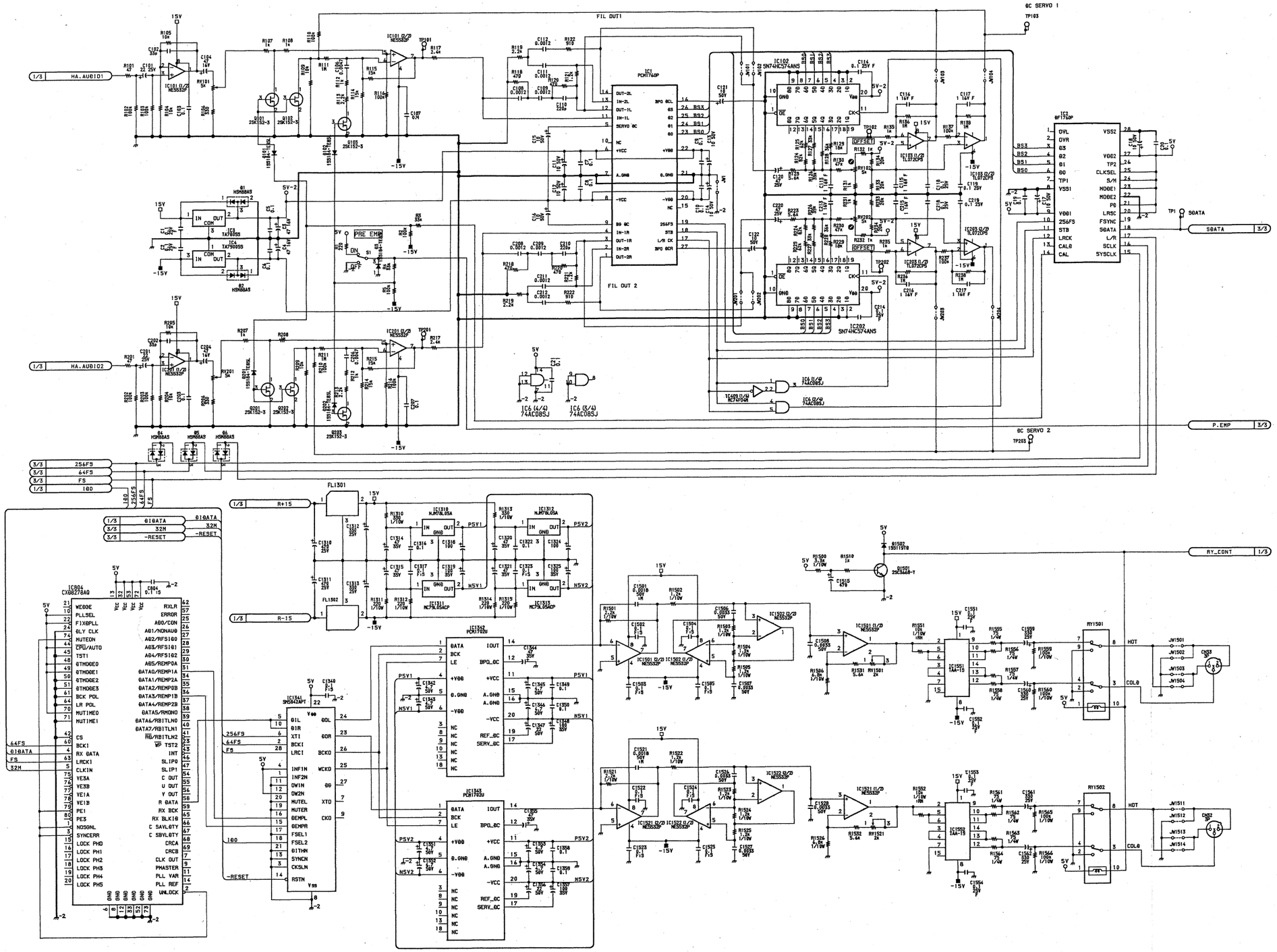
AD-101 BOARD (1/3)

BOARD NO. 1-650-728-11

DMA-2000

AD-101 (2/3), (3/3)

AD-101 (2/3)



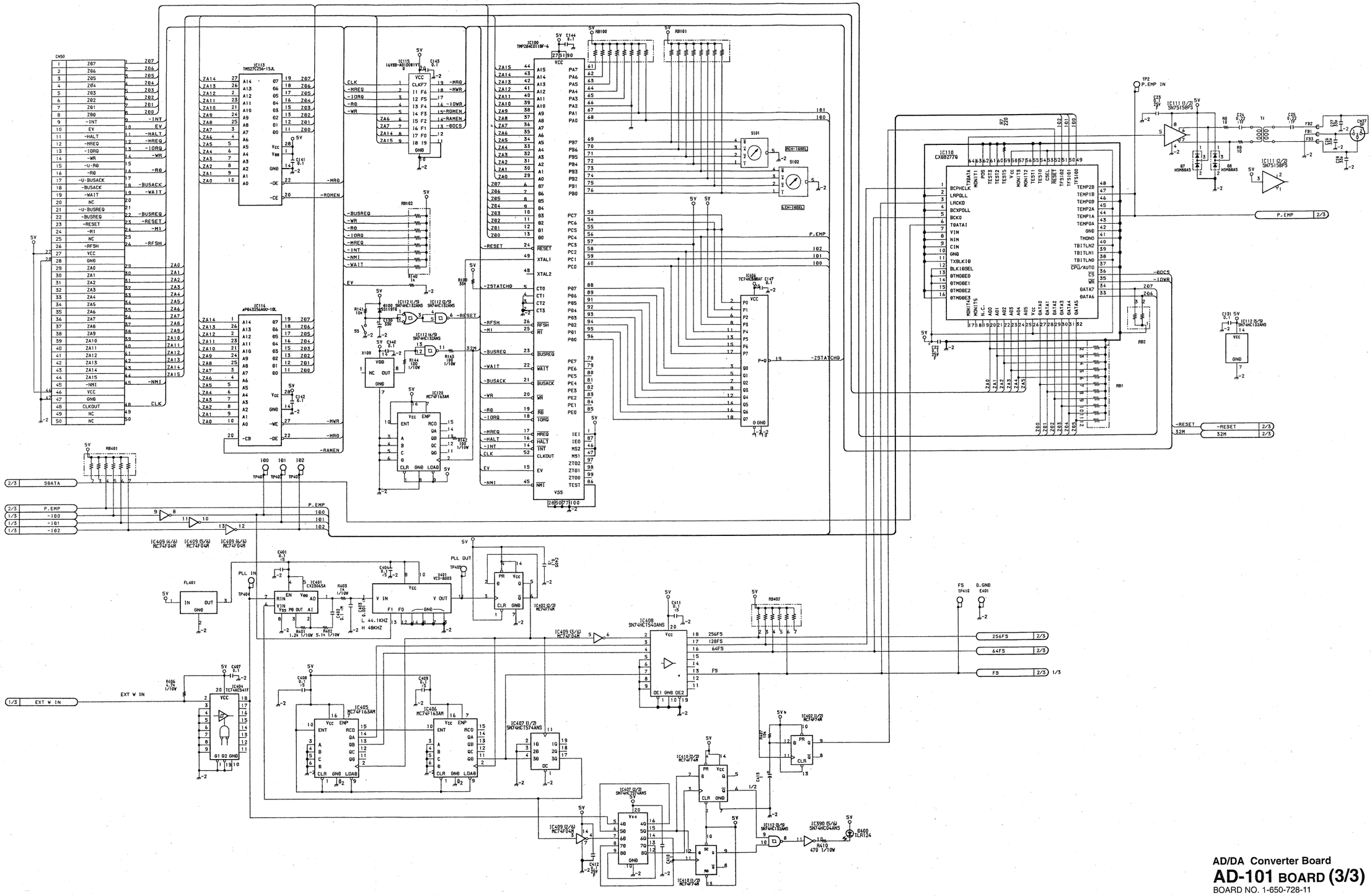
AD/DA Converter Board

AD-101 BOARD (2/3)

BOARD NO. 1-650-728-11

DMA-2000

AD-101 (2/3), (3/3)



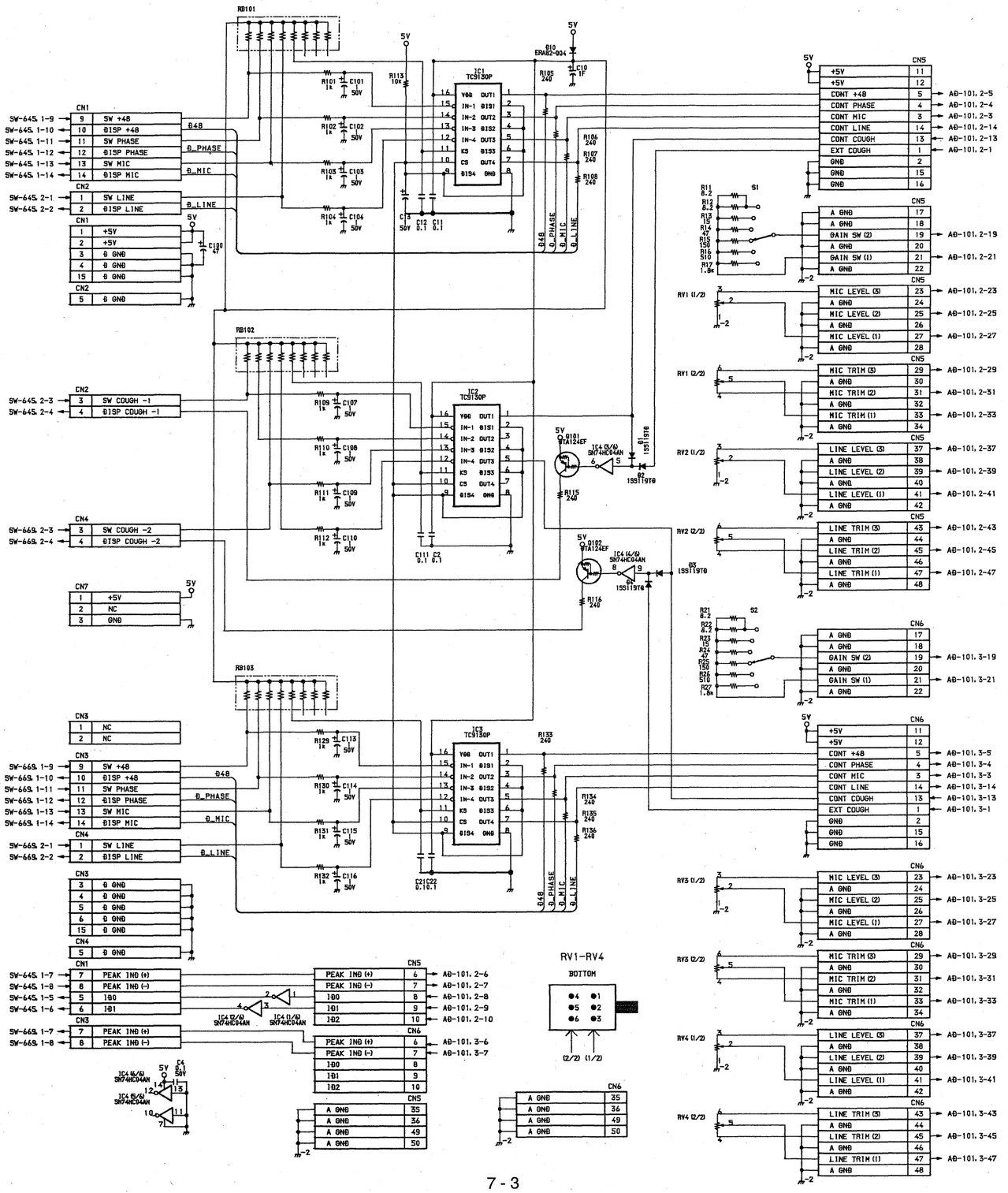
AD/DA Converter Board

AD-101 BOARD (3/3)

BOARD NO. 1-650-728-11

DMA-2000

VR-176 VR-176



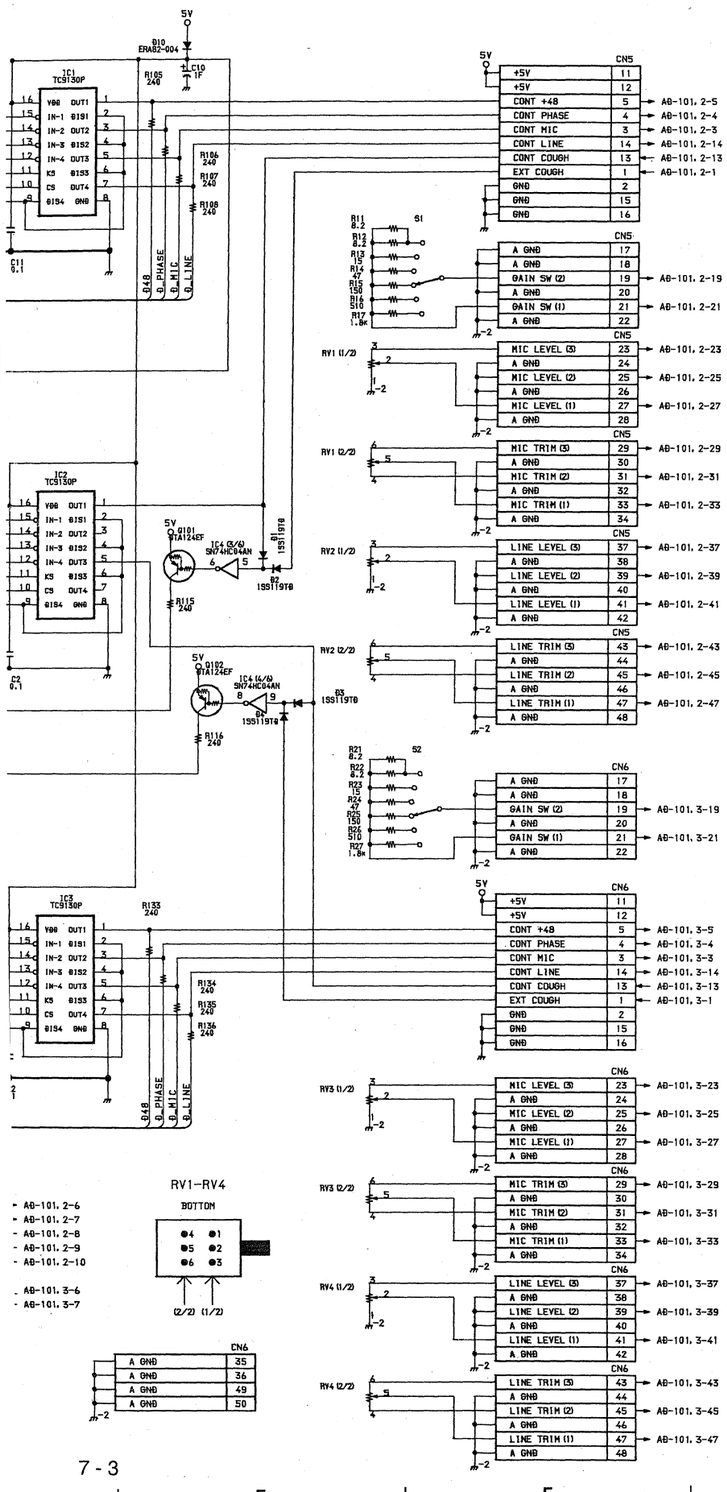
Volume Control Board

VR-176 BOARD

BOARD NO. 1-650-732-11

DMA-2000

VR-176



5V
CN5
+5V 11
+5V 12
CONT +48 5 → AG-101, 2-5
CONT PHASE 4 → AG-101, 2-4
CONT MIC 3 → AG-101, 2-3
CONT LINE 14 → AG-101, 2-14
CONT COUGH 13 ← AG-101, 2-13
EXT COUGH 1 ← AG-101, 2-1
GND 2
GND 15
GND 16
S1
A GND 17
A GND 18
GAIN SW (2) 19 → AG-101, 2-19
A GND 20
GAIN SW (1) 21 → AG-101, 2-21
A GND 22
RV1 (1/2)
MIC LEVEL (3) 23 → AG-101, 2-23
A GND 24
MIC LEVEL (2) 25 → AG-101, 2-25
A GND 26
MIC LEVEL (1) 27 → AG-101, 2-27
A GND 28
RV1 (2/2)
MIC TRIM (3) 29 → AG-101, 2-29
A GND 30
MIC TRIM (2) 31 → AG-101, 2-31
A GND 32
MIC TRIM (1) 33 → AG-101, 2-33
A GND 34
RV2 (1/2)
LINE LEVEL (3) 37 → AG-101, 2-37
A GND 38
LINE LEVEL (2) 39 → AG-101, 2-39
A GND 40
LINE LEVEL (1) 41 → AG-101, 2-41
A GND 42
RV2 (2/2)
LINE TRIM (3) 43 → AG-101, 2-43
A GND 44
LINE TRIM (2) 45 → AG-101, 2-45
A GND 46
LINE TRIM (1) 47 → AG-101, 2-47
A GND 48
S2
CN6
A GND 17
A GND 18
GAIN SW (2) 19 → AG-101, 3-19
A GND 20
GAIN SW (1) 21 → AG-101, 3-21
A GND 22
5V
CN6
+5V 11
+5V 12
CONT +48 5 → AG-101, 3-5
CONT PHASE 4 → AG-101, 3-4
CONT MIC 3 → AG-101, 3-3
CONT LINE 14 → AG-101, 3-14
CONT COUGH 13 ← AG-101, 3-13
EXT COUGH 1 ← AG-101, 3-1
GND 2
GND 15
GND 16
RV3 (1/2)
MIC LEVEL (3) 23 → AG-101, 3-23
A GND 24
MIC LEVEL (2) 25 → AG-101, 3-25
A GND 26
MIC LEVEL (1) 27 → AG-101, 3-27
A GND 28
RV3 (2/2)
MIC TRIM (3) 29 → AG-101, 3-29
A GND 30
MIC TRIM (2) 31 → AG-101, 3-31
A GND 32
MIC TRIM (1) 33 → AG-101, 3-33
A GND 34
RV4 (1/2)
LINE LEVEL (3) 37 → AG-101, 3-37
A GND 38
LINE LEVEL (2) 39 → AG-101, 3-39
A GND 40
LINE LEVEL (1) 41 → AG-101, 3-41
A GND 42
RV4 (2/2)
LINE TRIM (3) 43 → AG-101, 3-43
A GND 44
LINE TRIM (2) 45 → AG-101, 3-45
A GND 46
LINE TRIM (1) 47 → AG-101, 3-47
A GND 48

Volume Control Board

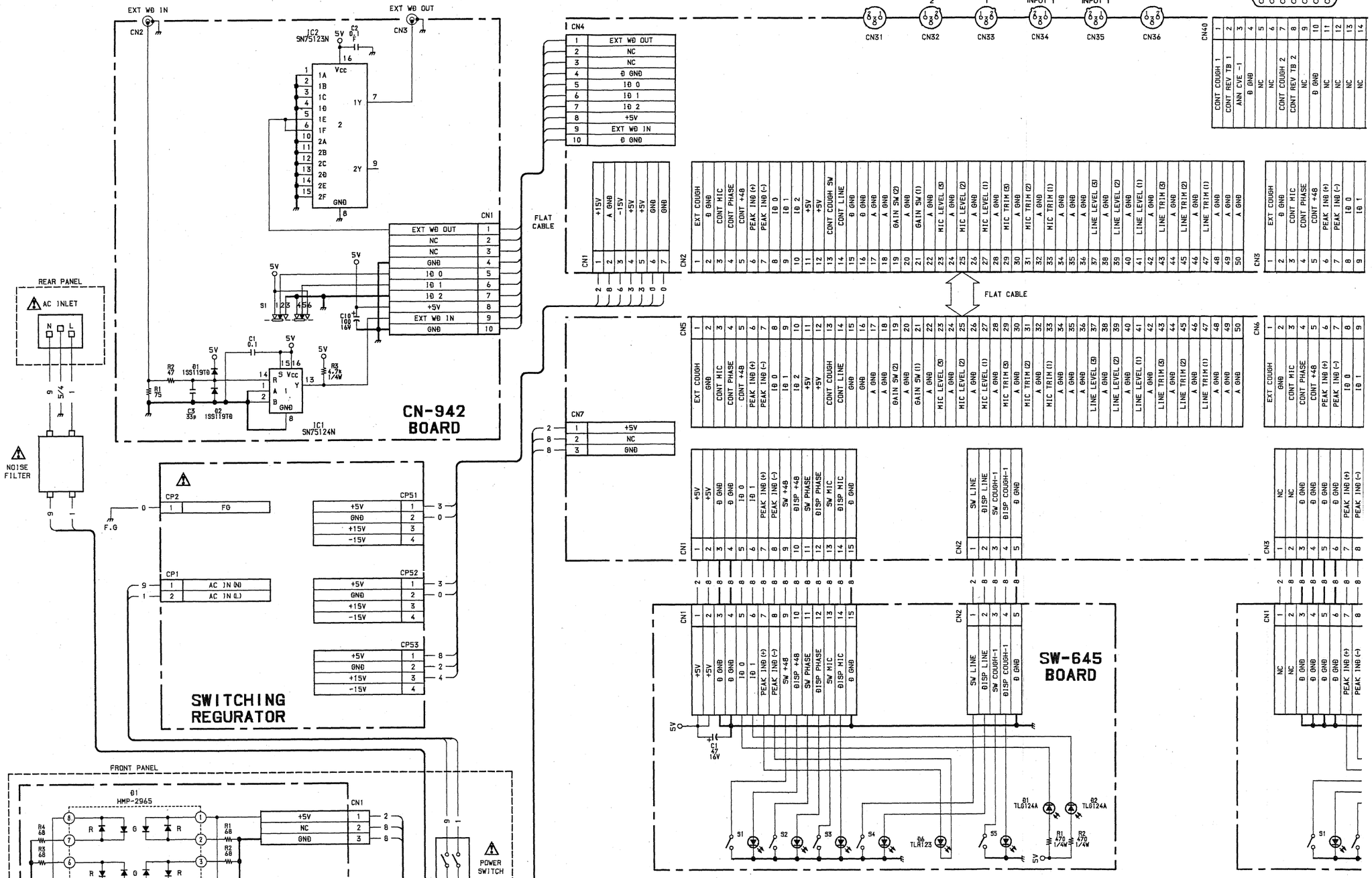
VR-176 BOARD

BOARD NO. 1-650-732-11
DMA-2000

7 - 3

CN-942, DP-131 SW-645, SW-669 FRAME WIRING FRAME

FRAME WIRING
CN-942
DP-131
SW-645
SW-669

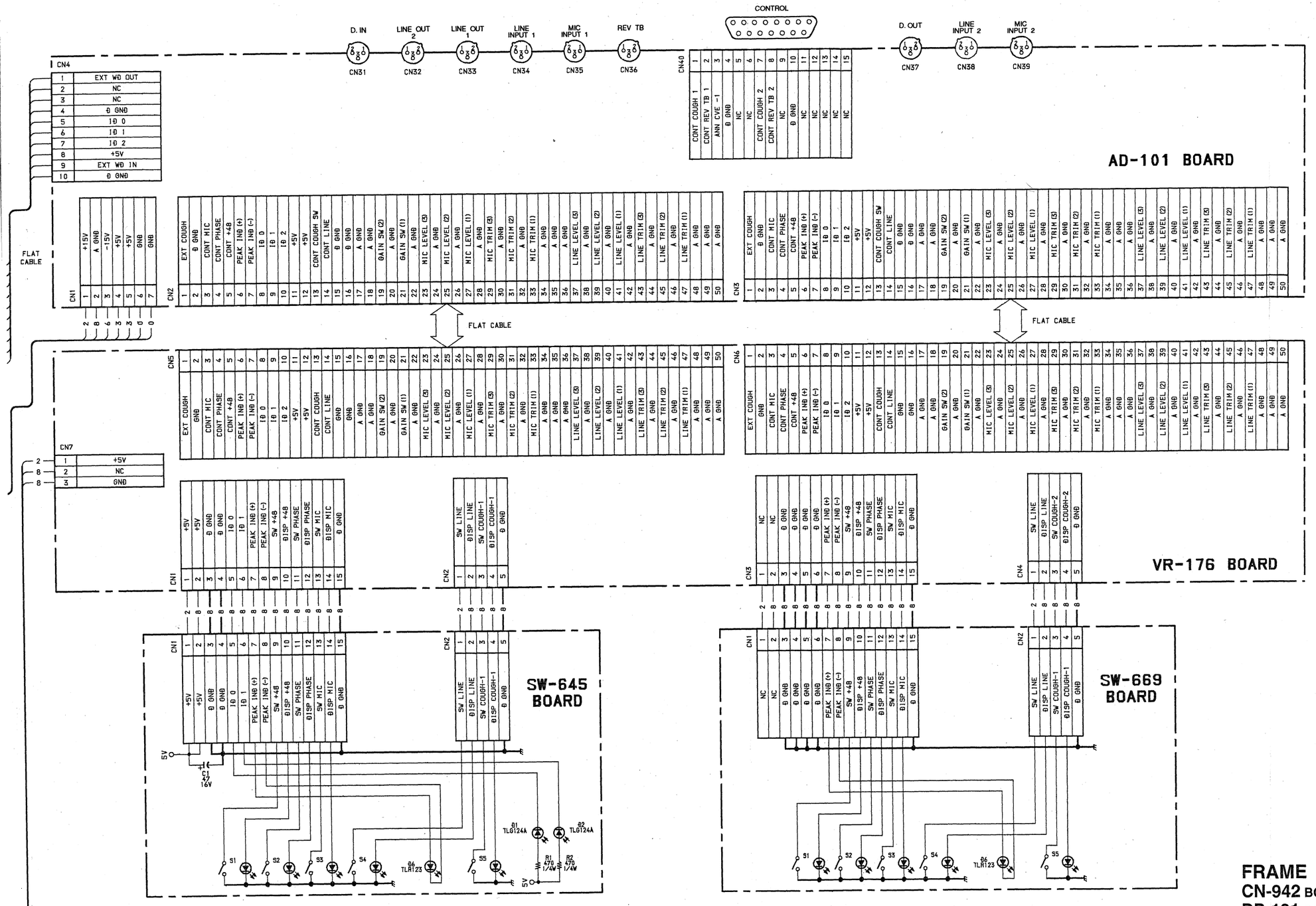


注意1: ⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The ⚠ -marked components are critical to sefety.
Replace only with same components as specified.

7 - 4

FRAME WIRING CN-942, DP-131
SW-645, SW-669



FRAME WIRING

CN-942 BOARD BOARD NO. 1-650-729-11
DP-131 BOARD BOARD NO. 1-636-210-11
SW-645 BOARD BOARD NO. 1-650-730-11
SW-669 BOARD BOARD NO. 1-650-731-11

DMA-2000

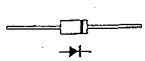
SECTION 8
SEMICONDUCTOR PIN ASSIGNMENTS

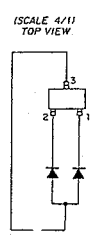
ここに記載されているIC、トランジスタ、ダイオードは、それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。) 部品の交換をする時は、SPARE PARTSの章を参照して下さい。等価回路はICメーカーのData Bookに従いました。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

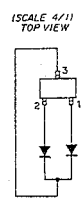
DIODE	PAGE	TRANSISTOR	PAGE	IC	PAGE	IC	PAGE
10E-1	8-1	2SC3668	8-2	74AC08SJ	8-2	SN74HCT540ANS	8-9
10E-2	8-1	2SK152	8-2	AM26LS32ACNS	8-2	SN74HCT574ANS	8-9
1S2835	8-1	DTA124EF	8-2	CX23065A	8-2	SN75123N	8-9
1S2836	8-1	DTC124XF	8-2	CXD8277Q	8-3	SN75124N	8-10
1S2837	8-1			CXD8278AQ	8-4	SN75158PS	8-10
1SS119	8-1			DF1760P	8-5	SSM-2017P	8-10
1SS184	8-1			GAL16V8-25LP	8-5	TA7805S	8-10
ERA82-004	8-1			MC74F04M	8-5	TA7812S	8-10
ERA85	8-1			MC74F163AM	8-5	TA79005S	8-10
HLMP2965	8-1			MC74F74M	8-6	TA79012S	8-10
HSM88AS	8-1			MC79L05ACP	8-6	TC74AC541F	8-10
MA152WK	8-1			NE5532P	8-6	TC74HC688AF	8-10
RD ? ? ES	8-1			NJM78L05A	8-6	TC9130P	8-11
RD ? ?ESB ?	8-1			NJM79L05A	8-6	TL062CP	8-11
TLG124A	8-1			PCM1702U-J	8-6	TL072CPS	8-11
TLR123	8-1			PCM1760P	8-7	TMPZ84C011BF-6	8-12
TLR124	8-1			SM5842AP	8-8	TMS27C256-15JL	8-11
				SM5842APT	8-8	UPD43256AGU-10L	8-13
				SM5843AP1	8-7	UPD43256AGU-10LL	8-13
				SN74HC04AN	8-9	UPD5201C	8-13
				SN74HC04ANS	8-9		
				SN74HC132ANS	8-9		
				SN74HC14ANS	8-9		
				SN74HC32ANS	8-9		
				SN74HC574ANS	8-9		

DIODE

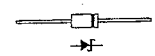

10E-1
10E-2
1SS119
ERA85

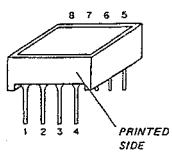


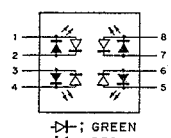
1S2835
1S2836



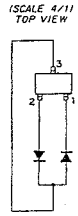
1S2837
1SS184
MA152WK


ERA82-004

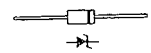


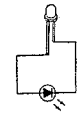


HLMP2965

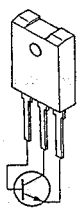


HSM88AS

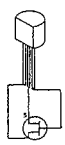

RD ? ? ES
RD ? ? ESB ?


TLG124A ; GREEN
TLR123 ; RED
TLR124 ; RED

TRANSISTOR

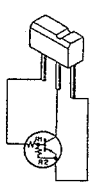


2SC3668

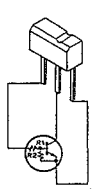


2SK152

(SCALE2/1) DTA124EF (R1 = 22K, R2 = 22K)



(SCALE 2/1) DTC124XF (R1 = 22K, R2 = 47K)

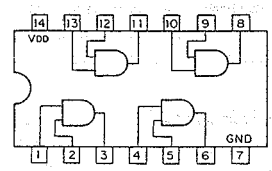


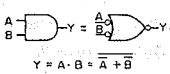
IC

74AC08SJ (NS) FLAT PACKAGE

C-MOS QUAD 2-INPUT AND GATES

- TOP VIEW -





A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

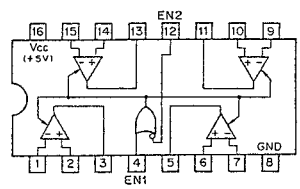
NOTE :

TYPE	VDD
TC74AC08F MC74ACT08M	+ 2 to + 5.5V
TC40H	+ 2 to + 8V
OTHER TYPES	+ 2 to + 6V

AM26LS32ACNS (TI) FLAT PACKAGE

HIGH SPEED DIFFERENTIAL LINE RECEIVER

- TOP VIEW -



FUNCTION TABLE

EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

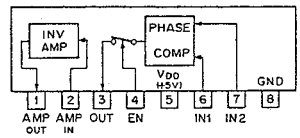
0; LOW LEVEL
1; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

	SENSE	INPUT VOLT
C32/LS32	± 200mV	± 7V
LS33	± 500mV	± 15V

CX23065A (SONY)

N-MOS PHASE COMPARATOR WITH INVERSION AMPLIFIER

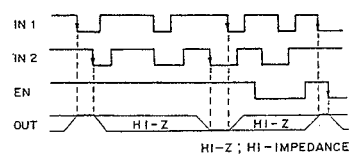
- PRINTED SIDE VIEW -



EN	OUT
1	ACTIVE
0	HIGH IMPEDANCE

1; HIGH LEVEL
0; LOW LEVEL

TIMING CHART

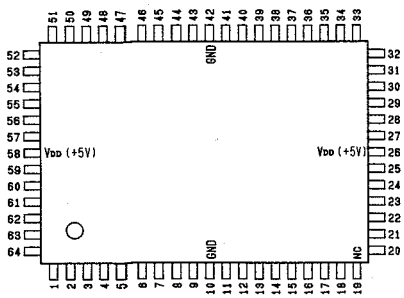


HI-Z ; HI-IMPEDANCE

CXD8277Q (TI) FLAT PACKAGE

C-MOS DIGITAL AUDIO (AES/EBU) ENCODER

– TOP VIEW –



(VDD = + 5V)

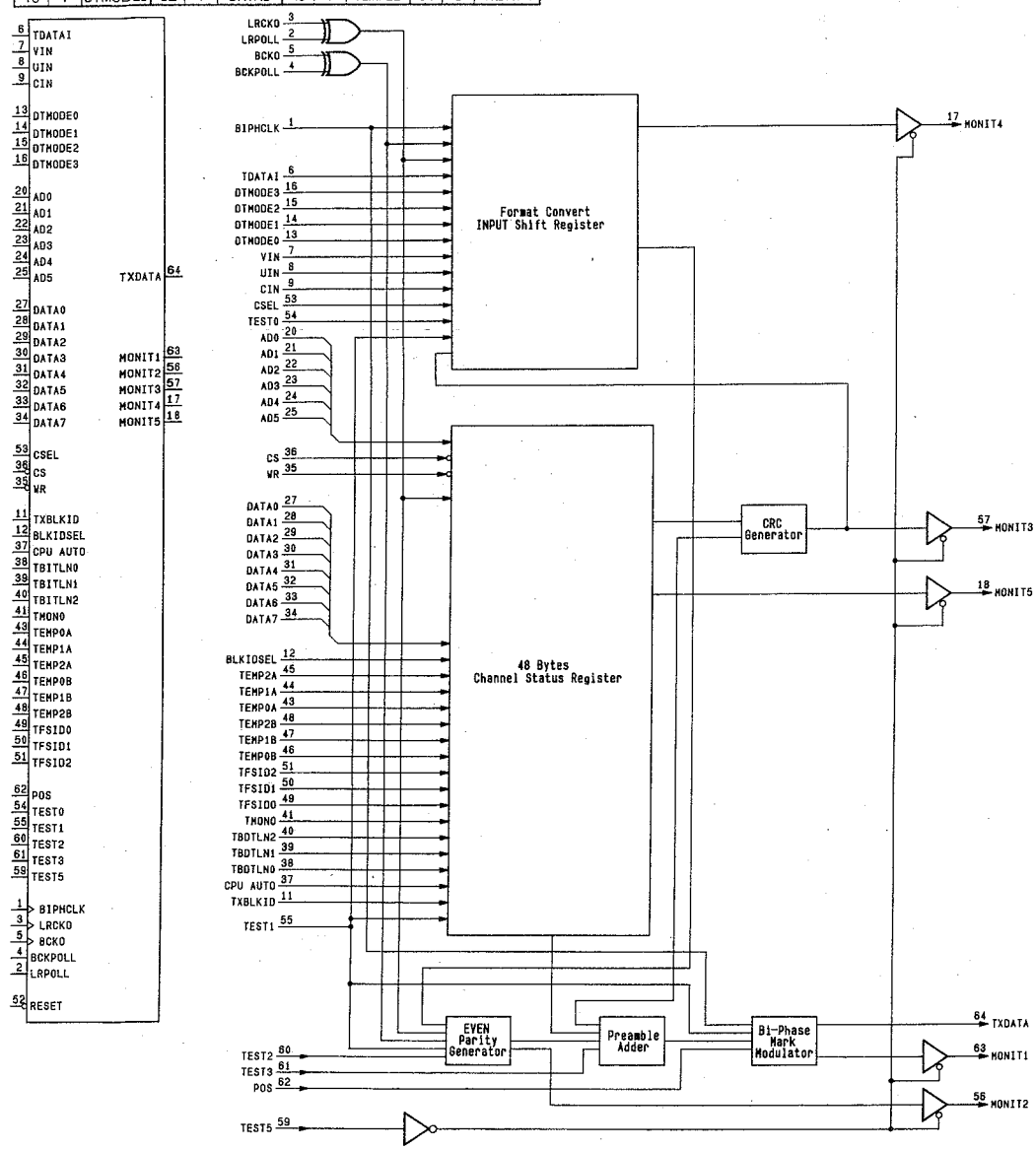
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	BIPHCLK	17	O	MONIT4	33	I	DATA6	49	I	TFSID0
2	I	LRPOLL	18	O	MONIT5	34	I	DATA7	50	I	TFSID1
3	I	LRCKO	19	–	NC	35	I	$\overline{WR}$	51	I	TFSID2
4	I	BCKPOLL	20	I	AD0	36	I	$\overline{CS}$	52	I	$\overline{RESET}$
5	I	BCKO	21	I	AD1	37	I	CPU AUTO	53	I	CSEL
6	I	TDATAI	22	I	AD2	38	I	TBITLN0	54	I	TEST0
7	I	VIN	23	I	AD3	39	I	TBITLN1	55	I	TEST1
8	I	UIN	24	I	AD4	40	I	TBITLN2	56	O	MONIT2
9	I	CIN	25	I	AD5	41	I	TMONO	57	O	MONIT3
10	–	GND	26	–	VDD	42	–	GND	58	–	VDD
11	I	TxBLKID	27	I	DATA0	43	I	TEMP0A	59	I	TEST5
12	I	BLKIDSEL	28	I	DATA1	44	I	TEMP1A	60	I	TEST2
13	I	DTMODE0	29	I	DATA2	45	I	TEMP2A	61	I	TEST3
14	I	DTMODE1	30	I	DATA3	46	I	TEMP0B	62	I	POS
15	I	DTMODE2	31	I	DATA4	47	I	TEMP1B	63	O	MONIT1
16	I	DTMODE3	32	I	DATA5	48	I	TEMP2B	64	O	TxDATA

INPUT

AD0 – AD5	; ADDRESS BUS FOR WRITING CHANNEL STATUS DATA FROM EXTERNAL CPU TO CHANNEL STATUS REGISTER
BCKO	; BIT CLOCK (64Fs, 32Fs) FOR TDATAI
BCKPOLL	; POLARITY SWITCHING OF BCKO (PIN No.5)
BIPHCLK	; 128Fs FOR DO OUTPUT
BLKIDSEL	; BLOCK ID EXTERNAL/INTERNAL SELECTION ("H" : INTERNAL MODE)
CIN	; SERIAL INPUT OF EACH SUB FRAME CHANNEL STATUS
CPU AUTO	; SWITCHING SIGNAL OF CPU AND AUTO MODE ("H" : AUTO MODE)
$\overline{CS}$	; CHIP SELECT SIGNAL FROM EXTERNAL CPU TO CHANNEL STATUS REGISTER ("L" : SELECT, "H" : UNSELECT)
CSEL	; SELECTS THE USE OF CIN (EXTERNAL INPUT) OR INTERNAL REGISTER FOR CHANNEL STATUS DATA. ("H" : INTERNAL REGISTER)
DATA0 – DATA7	; DATA BUS FOR WRITING CHANNEL STATUS DATA FROM EXTERNAL CPU TO CHANNEL STATUS REGISTER
DTMODE0 – 3	; DECISION OF DIGITAL AUDIO SIGNAL INPUT FORMAT
LRCKO	; L/R CLOCK FOR DIGITAL AUDIO SIGNAL OUTPUT
LRPOLL	; POLARITY SWITCHING OF LRCKO (PIN No.3)
POS	; FORCIBLY SETS PREAMBLE TO BE POSITIVE POLARITY ("H" : ACTIVE)
$\overline{RESET}$	; SETS TxDATA OUTPUT (AUDIO DATA, AND VALIDITY BIT, USER DATA AND CHANNEL STATUS DATA) TO BE "0". ("L" : ACTIVE)
TBITLN0 – 2	; SUBFRAME A/B CHANNEL STATUS SETTING (DATA BIT LENGTH)
TDATAI	; DIGITAL AUDIO SIGNAL INPUT
TEMP0A – 2A	; SUBFRAME A EMP INFORMATION
TEMP0B – 2B	; SUBFRAME B EMP INFORMATION
TEST0	; TEST RESET (CONNECTION TO GND)
TEST1	; TEST RESET (CONNECTION TO GND)
TEST2	; TEST
TEST3	; TEST
TEST5	; CONTROL SIGNAL OF MONIT1 TO 5
TFSID0 – 2	; SUBFRAME A/B Fs INFORMATION
TMONO	; SUBFRAME A/B CHANNEL STATUS SETTING (MONOPHONIC/TWO CHANNEL MODE)
TxBLKID	; EXTERNAL BLOCK ID SIGNAL
UNI	; SERIAL INPUT OF EACH SUB FRAME USER DATA
VIN	; SERIAL INPUT OF EACH SUB FRAME VALIDITY BIT
$\overline{WR}$	; CHANNEL STATUS DATA WRITING FROM EXTERNAL CPU TO CHANNELSTATUS REGISTER

OUTPUT

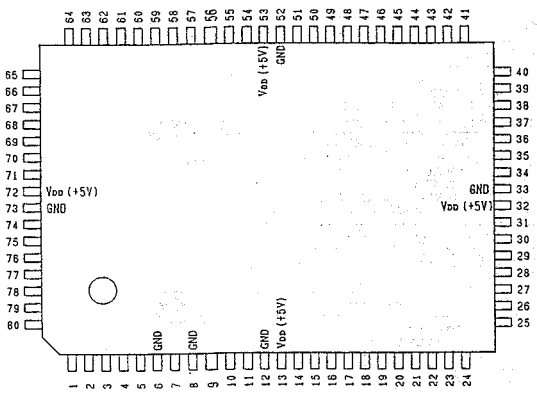
MONIT1 – 5	; MONITOR
TxDATA	; AES/EBU FORMAT DIGITAL AUDIO OUTPUT

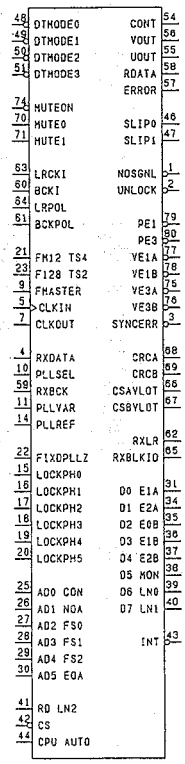


CXD8278AQ (SONY)

C-MOS DIGITAL AUDIO SIGNAL (AES/EBU) DECODER

– TOP VIEW –





Pin No.	I/O	SIGNAL	Pin No.	I/O	SIGNAL	Pin No.	I/O	SIGNAL	Pin No.	I/O	SIGNAL
1	O	NOSGNL	21	I/O	FM12 TS4	41	I/O	RD LN2	61	I	BCKPOL
2	O	UNLOCK	22	I/O	FIXDPLLZ	42	I	CS	62	O	RXLR
3	O	SYNCERR	23	I/O	F128 TS2	43	O	INT	63	I	LRCKI
4	I	RXDATA	24	I	TST3	44	I	CPU_AUTO	64	I	LRPOL
5	I	CLKIN	25	I/O	AD0 CON	45	I	TST1	65	O	RXBLKID
6	–	GND	26	I/O	AD1 NOA	46	O	SLIP0	66	O	CSAVLDT
7	O	CLKOUT	27	I/O	AD2 FS0	47	O	SLIP1	67	O	CSBVLDT
8	–	GND	28	I/O	AD3 FS1	48	I	DTMODE0	68	O	CRCA
9	O	FMASTER	29	I/O	AD4 FS2	49	I	DTMODE1	69	O	CRCB
10	I	PLLSEL	30	I/O	AD5 EOA	50	I	DTMODE2	70	I	MUTE0
11	O	PLLVAR	31	O	D0 E1A	51	I	DTMODE3	71	I	MUTE1
12	–	GND	32	–	VDD	52	–	GND	72	–	VDD
13	–	VDD	33	–	GND	53	–	VDD	73	–	GND
14	O	PLLREF	34	O	D1 E2A	54	O	COUT	74	I	MUTEON
15	I/O	LOCKPH0	35	O	D2 E0B	55	O	UOUT	75	O	VE3A
16	I/O	LOCKPH1	36	O	D3 E1B	56	O	VOUT	76	O	VE3B
17	I/O	LOCKPH2	37	O	D4 E2B	57	O	ERROR	77	O	VE1A
18	I/O	LOCKPH3	38	O	D5 MON	58	O	RDATA	78	O	VE1B
19	I/O	LOCKPH4	39	O	D6 LN0	59	O	RXBCK	79	O	PE1
20	I/O	LOCKPH5	40	O	D7 LN1	60	I	BCKI	80	O	PE3

INPUT

BCKI ; REFERENCE BIT CLOCK (64/32Fs)

BCKPOL ; POLARITY SWITCHING SIGNAL OF BCKI (PIN NO.60) AND RXBCK (PIN NO.59)

CLKIN ; MASTER CLOCK OSCILLATOR INPUT AT DIGITAL PLL

CPU AUTO ; SELECTS CPU INTERFACE OR AUTO INTERFACE.
("H" : AUTO INTERFACE, "L" : CPU INTERFACE)

$\overline{CS}$; CHIP SELECT SIGNAL (INPUT FOR CHANNEL STATUS RESISTER) ("L" : SELECT)

DTMODE0 – 3 ; OUTPUT FORMAT SPECIFYING CODE OF RDATA SIGNAL (PIN NO.58)

LRCKI ; REFERENCE L/R CLOCK INPUT (Fs PERIOD)

LRPOL ; POLARITY SWITCHING SIGNAL OF LRCKI (PIN NO.63) AND RXLR (PIN NO.62)

MUTE0,1 ; RDATA (PIN NO.58) MUTE PERIOD SETTING CODE

$\overline{MUTEON}$; "L" : AUDIO OUTPUT BE FORCIBLY MUTE ON FOR A CERTAIN PERIOD

PLLSEL ; "L" : ANALOG PLL, "H" : DIGITAL PLL

RXDATA ; AES/EBU INPUT

TST1 ; TEST INPUT (NORMALLY FIXED TO "L".)

TST3 ; TEST PIN (FIXED TO "L".)

OUTPUT

CLKOUT ; MASTER CLOCK OSCILLATOR OUTPUT AT DIGITAL PLL

COUT ; C BIT STATUS SIGNAL EXTRACTED FROM AES/EBU INPUT SIGNAL.

CRCA, CRCB ; OUTPUTS THE RESULT OF CHANNEL STATUS CRC CHECK OF SUBFRAME A AND B AT ERROR OCCURRING

CSAVLDTY,
CSBVLDTY ; SUBFRAME A AND B CHANNEL STATUS

D0 E1A ; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")

D1 E2A ; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")

D2 E0B ; SUBFRAME B CHANNEL STATUS (CPU AUTO : "H")

D3 E1B ; SUBFRAME B CHANNEL STATUS (CPU AUTO : "H")

D4 E2B ; SUBFRAME B CHANNEL STATUS (CPU AUTO : "H")

D5 MON ; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")

D6 LN0 ; SUBFRAME A/B CHANNEL STATUS (CPU AUTO : "H")

D7 LN1 ; SUBFRAME A/B CHANNEL STATUS (CPU AUTO : "H")

ERROR ; ERROR INFORMATION OUTPUT (PARITY, SLIP ERROR, etc.) IN SERIAL.

FMASTER ; MASTER CLOCK OUTPUT

$\overline{INT}$; INTERRUPTION SIGNAL OUTPUT

$\overline{NOSGNL}$; NO SIGNAL DETECTION

$\overline{PE1}$; PARITY ERROR DETECTION OUTPUT (1 SUBFRAM)

$\overline{PE3}$; PARITY ERROR DETECTION OUTPUT (3 SUBFRAMS CONTINUOUSLY)

PLLREF ; RXDATA SYNC DETECTION

PLLVAR ; ANALOG PLL MASTER CLOCK 1/256 (2Fs) SIGNAL

RDATA ; AES/EBU INPUT SIGNAL DEMODULATED SIGNAL OUTPUT

RXBCK ; BIT CLOCK OUTPUT GENERATED FROM AES/EBU INPUT SIGNAL

RXBLKID ; BLOCK ID SIGNAL

RXLR ; REFERENCE L/R CLOCK OUTPUT (Fs PERIOD)

SLIP0, SLIP1 ; DATA SLIP DETECTION

$\overline{SYNCERR}$; SYNC ERROR DETECTION OUTPUT.

$\overline{UNLOCK}$; DIGITAL PLL UNLOCK DETECTION OUTPUT.

UOUT ; U BIT (USER DATA BIT) STATUS SIGNAL EXTRACTED FROM RXDATA SIGNAL

$\overline{VE1A}$; VALIDITY ERROR DETECTION OUTPUT (ONE SUBFRAM A).

$\overline{VE1B}$; VALIDITY ERROR DETECTION OUTPUT (ONE SUBFRAM B).

VE3A ; VALIDITY ERROR DETECTION OUTPUT
(3FRAMS CONTINUOUSLY FOR SUBFRAM A)

VE3B ; VALIDITY ERROR DETECTION OUTPUT
(3FRAMS CONTINUOUSLY FOR SUBFRAM B)

VOUT ; V BIT (VALIDITY BIT) STATUS SIGNAL EXTRACTED FROM RXDATA SIGNAL

INPUT/OUTPUT

AD0 CON ; CHANNEL STATUS (CPU AUTO : "H")

AD1 NOA ; CHANNEL STATUS (CPU AUTO : "H")

AD2 FS0 ; CHANNEL STATUS (CPU AUTO : "H")

AD3 FS1 ; CHANNEL STATUS (CPU AUTO : "H")

AD4 FS2 ; CHANNEL STATUS (CPU AUTO : "H")

AD5 EOA ; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")

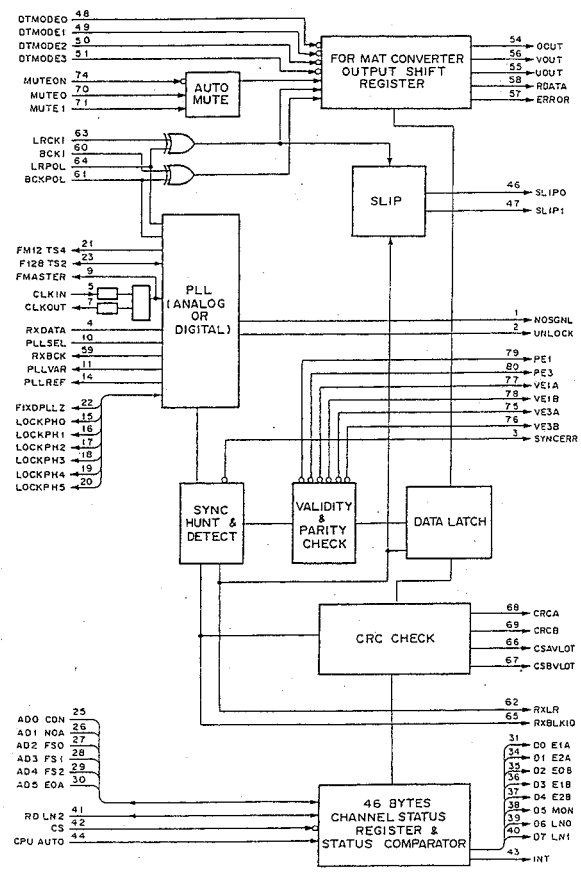
F128 TS2 ; OUTPUTS 128Fs OF DIGITAL PLL.

FIXDPLL ; PLLSEL : "H",
DIGITAL PLL OPERATION MODE SELECTION SIGNAL
("N" : NARROW MODE, "H" : WIDE MODE)

FM12 TS4 ; 1/2 MCK OUTPUT

LOCKPH0 – 5 ; PLLSEL : "H", FIXDPLL : "H"
OPERATION PERIOD SETTING DATA INPUT AT NARROW MODE
(DIGITAL PLL MODE)

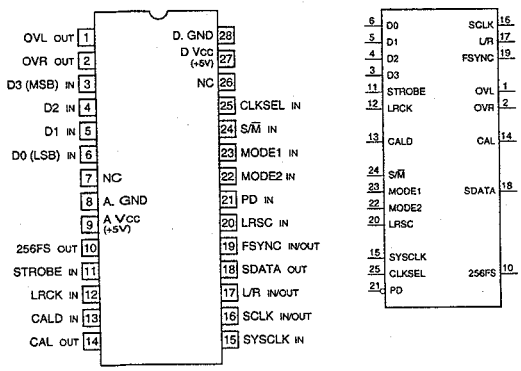
RD LN2 ; SUBFRAME A/B CHANNEL STATUS (CPU AUTO ; "H")



DF1760P (NIHON BURR BROWN)

20-BIT A/D CONVERTER

– TOP VIEW –



INPUT

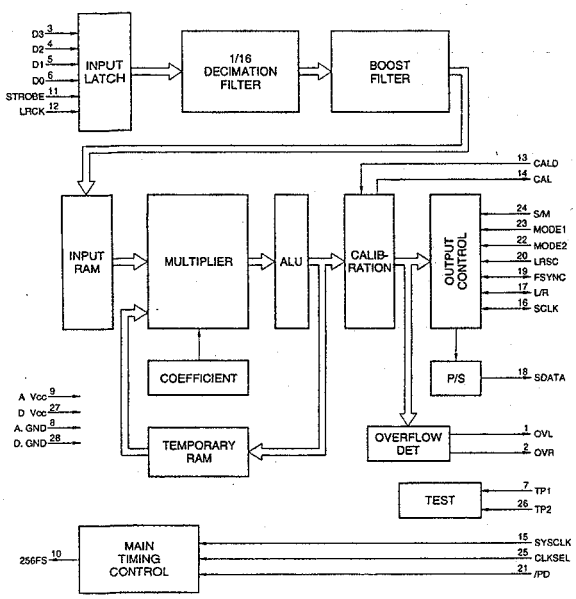
CALD	; CALIBRATION (L: EFFECTIVE)
CLKSEL	; SYSTEM CLOCK SELECT
D0 - D3	; DATA INPUTS
LRCK	; L/R CLOCK
LRSC	; L/R SELECT (H: Lch)
MODE1, 2	; OUTPUT DATA FORMAT SELECT
STROBE	; DATA STROBE
SYSCLK	; SESTEM CLOCK
S/$\overline{M}$	; SLAVE/MASTER MODE SELECT (H: SLAVE)
$\overline{PD}$	; POWER DOWN MODE (L: POWER DOWN)

OUTPUT

CAL	; CALIBRATION (H: EXECUTION)
OVL	; Lch OVERFLOW DETECTION (H: DETECTION)
OVR	; Rch OVERFLOW DETECTION (H: DETECTION)
SDATA	; SERIAL DATA
256FS	; SYSTEM CLOCK

INPUT/OUTPUT

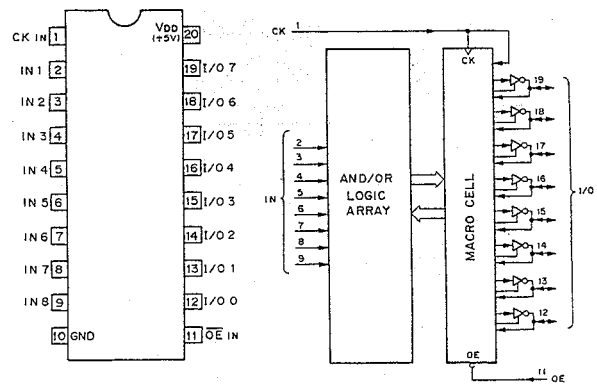
FSYNC	; FRAME SYNCHRO CLOCK
L/R	; L/R CHANNEL DISCRIMINATE CLOCK
SCLK	; DATA CLOCK



GAL16V8-25LP (LATTICE)

C-MOS ELECTRICALLY ERASABLE PROGRAMMABLE LOGIC DEVICE

– TOP VIEW –

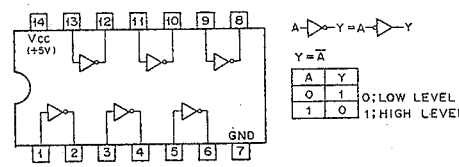


* ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

MC74F04M (MOTOROLA) FLAT PACKAGE

TTL INVERTER

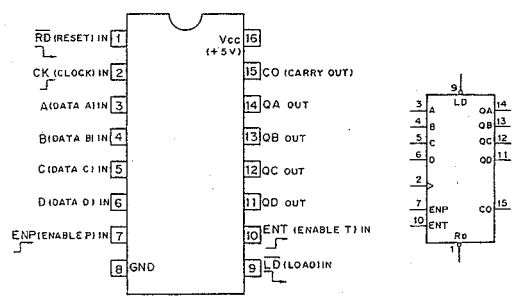
– TOP VIEW –



MC74F163AM (MOTOROLA) FLAT PACKAGE

TTL PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER

– TOP VIEW –



MODE SELECTION

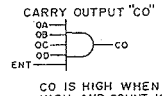
CONTROL INPUTS				MODE
$\overline{RD}$	$\overline{LD}$	ENP	ENT	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

COUNT SEQUENCE

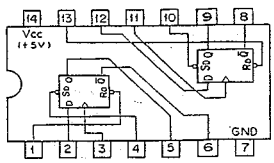
COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

CARRY OUTPUT "CO"



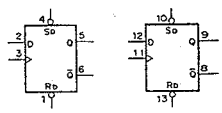
CO IS HIGH WHEN ENT INPUT IS HIGH AND COUNT IS "15".

MC74F74M (MOTOROLA) FLAT PACKAGE
TTL D-TYPE FLIP FLOP WITH DIRECT SET/RESET
– TOP VIEW –

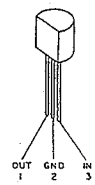


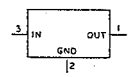
INPUTS				OUTPUTS	
$\overline{Sd}$	$\overline{Rd}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1*	1*
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
↑; NONSTABLE
1*; NONSTABLE

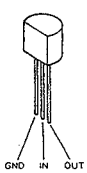


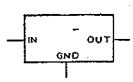
NJM78L05A (JRC) +5V (100mA)
POSITIVE VOLTAGE REGULATOR



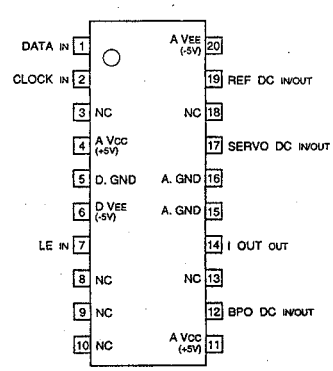


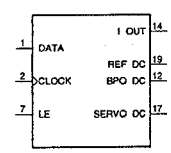
MC79L05ACP (MOTOROLA) –5V
NJM79L05A (JRC) –5V
NEGATIVE VOLTAGE REGULATOR (100mA)





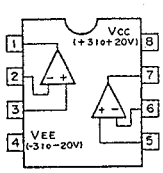
PCM1702U-J (NIHON BURR BROWN) FLAT PACKAGE
20-BIT SERIAL INPUT D/A CONVERTER
– TOP VIEW –



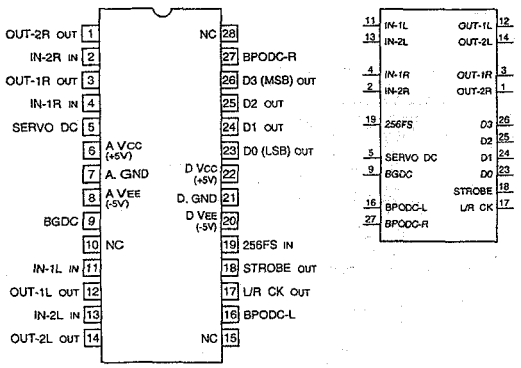


BPO DC	; BIPOLAR OFFSET FILTER
CLOCK	; BIT CLOCK INPUT
DATA	; SERIAL DATA INPUT
I OUT	; CURRENT OUTPUT
LE	; LATCH ENABLE INPUT
REF DC	; REFERENCE FILTER
SERVO DC	; SERVO FILTER

NE5532P (TI)
LOW NOISE OPERATIONAL AMPLIFIER
– TOP VIEW –



PCM1760P (NIHON BURR BROWN)
20-BIT A/D CONVERTER
– TOP VIEW –

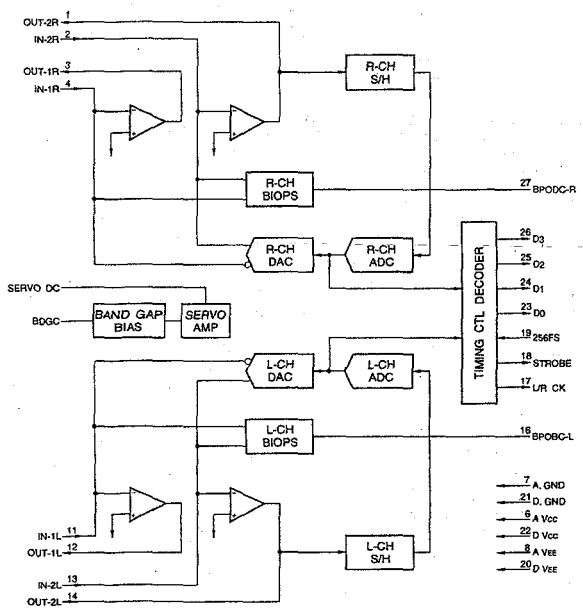


INPUT

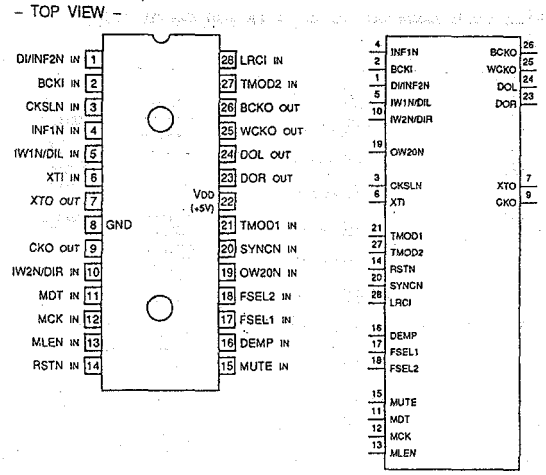
IN-1L	; Lch FIRST STAGE AMP
IN-1R	; Rch FIRST STAGE AMP
IN-2L	; Lch SECOND STAGE AMP
IN-2R	; Rch SECOND STAGE AMP
256FS	; SYSTEM CLOCK

OUTPUT

D0 - D3	; DATA OUTPUTS
L/R CK	; L/R CLOCK (64FS)
STROBE	; DATA STROBE
OUT-1L	; Lch FIRST STAGE AMP
OUT-1R	; Rch FIRST STAGE AMP
OUT-2L	; Lch SECOND STAGE AMP
OUT-2R	; Rch SECOND STAGE AMP



SM5843AP1 (NPC)
C-MOS AUDIO PLAYBACK DIGITAL FILTER
– TOP VIEW –



INPUT

BCKI	; INPUT BIT CLOCK
CKSLN	; INPUT FREQUENCY SELECT (H: 384fs/L: 256fs)
DEMP	*; DE-EMPHASIS CONTROL (L: OFF/H: ON)*
DI/INF2N	; INPUT DATA (INF1N = L)/INPUT FORMAT SELECT 2 (INF1N = H)
FSEL1, 2	; DE-EMPHASIS SELECT

fs (Hz)		32k	44.1k	48k	TEST MODE
SETTING	FSEL1	H	L	L	H
	FSEL2	H	L	H	L

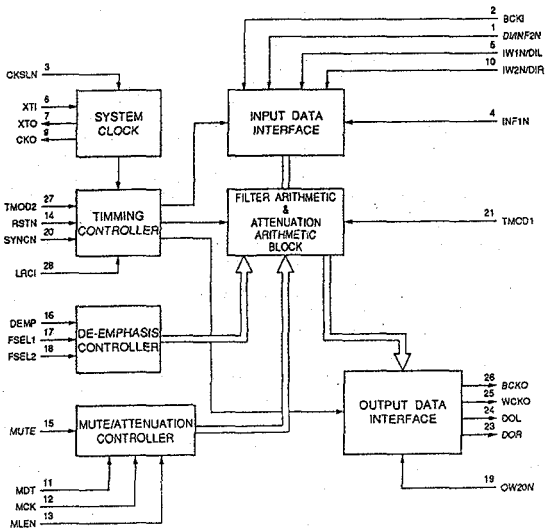
INF1N	; INPUT FORMAT SELECT 1
IW1N/DIL	; INPUT WORD LENGTH 1 (INF1N = L)/Lch DATA INPUT (TNF1N = H)
IW2N/DIR	; INPUT WORD LENGTH 2 (INF1N = L)/Rch DATA INPUT (TNF1N = H)
LRCI	; SAMPLE RATE CLOCK (fs)
MCK	; ATTENUATION BIT CLOCK
MDT	; ATTENUATION SERIAL DATA
MLEN	; ATTENUATION LATCH CLOCK
MUTE	; MUTE CONTROL
OW20N	; OUTPUT WORD LENGTH

OUTPUT WORD LENGTH (BIT)	18	20
OW20N	H	L

RSTN	; SYSTEM RESET (L: RESET/H: NORMAL)
SYNCN	; SYNC MODE SELECT (L: EXECUTION SYNC MODE/H: JITTER FREE MODE)
TMOD1	; *ﾃﾞｼﾞﾀﾙ* ON/OFF SELECT (L: ON/H: OFF)
TMOD2	; FILTER CHARACTER SELECT
XTI	; OSCILLATOR INPUT

OUTPUT

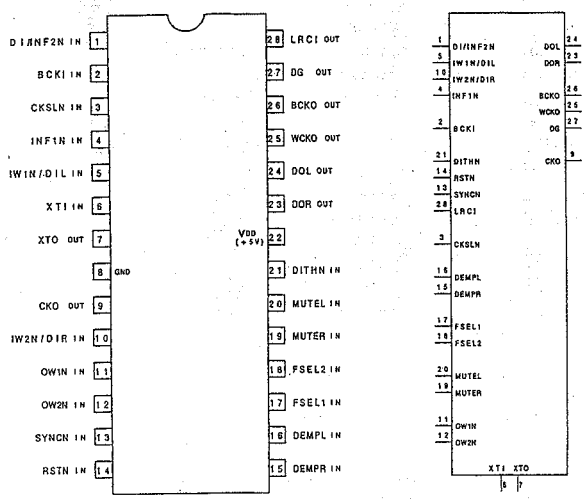
BCKO	; OUTPUT BIT CLOCK
CKO	; OSCILLATOR OUTPUT CLOCK
DOL	; Lch DATA
DOR	; Rch DATA
WCKO	; OUTPUT WORD CLOCK
XTO	; OSCILLATOR OUTPUT

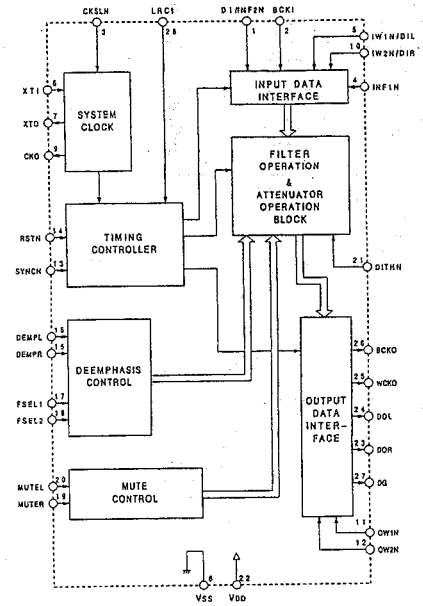


SM5842AP (NPC)
SM5842APT (NPC)

C-MOS 8TIMES OVER SAMPLING DIGITAL FILTER FOR DIGITAL AUDIO

– TOP VIEW –





INPUT

BCKI ;INPUT BIT CLOCK
CKSLN ;OSCILLATE AND INPUT FREQUENCY SELECT (H;384 fs, L;256 fs)
DEMPL ;Lch DEEMPHASIS SIGNAL (L;OFF, H;ON)
DEMPR ;Rch DEEMPHASIS SIGNAL (L;OFF, H;ON)
DI/INF2N ;INPUT DATA (INF1N=L)/INPUT FORMAT SELECT 2 (INF1N=H)
DITHN ;DITHER ON/OFF SELECT (L;ON, H;OFF)
FSEL1 ;DEEMPHASIS FILTER SELECT 1
FSEL2 ;DEEMPHASIS FILTER SELECT 2

fs(Hz)	32k	44.1k	48k
FSEL1	H	L	L
FSEL2	H	L	H

INF1N ;INPUT FORMAT SELECT 1

	TERMINAL	INPUT FORMAT		
		LR MUTUALLY BELOW STUFFING	LR MUTUALLY ABOVE STUFFING	LR SIMULTANEOUSLY ABOVE STUFFING
SETTING	INF1N	L	H	
	INF2N	DI TERMINAL	L	H
TERMINAL FUNCTION	NO.1	DI	INF2N	
	NO.5	IW1N	DIL	
	NO.10	IW2N	DIR	

IW1N/DIL;INPUT WORD LENGTH SELECT 1 (INF1N=L)/Lch DATA INPUT (INF1N=H)
IW2N/DIR;INPUT WORD LENGTH SELECT 2 (INF1N=L)/Rch INPUT DATA (INF1N=H)

INPUT FORMAT		LR MUTUALLY BELOW STUFFING				LR MUTUALLY ABOVE STUFFING	LR SIMULTANEOUSLY ABOVE STUFFING
INPUT WORD LENGTH(BIT)		16	18	20	24	24	
5	IW1N/DIL	H	L	H	L	(USED AS DIL TERMINAL)	
10	IW2N/DIR	H	H	L	L	(USED AS DIR TERMINAL)	
4	INF1N	L				H	
1	INF2N/DI	(USED AS DI TERMINAL)				L	H

MUTEL ;MUTE SIGNAL Lch (L;NORMAL OUTPUT,H;MUTING)
MUTER ;MUTE SIGNAL Rch (L;NORMAL OUTPUT,H;MUTING)
OW1N ;OUTPUT WORD LENGTH SELECT 1
OW2N ;OUTPUT WORD LENGTH SELECT 2

OUTPUT WORD LENGTH(BIT)		18	20	22	24
SETTING	OW1N	H	L	H	L
	OW2N	H	H	L	L

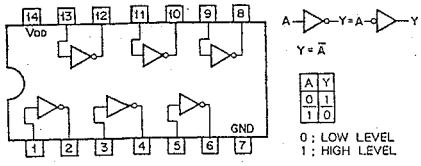
RSTN ;SYSTEM RESET (L;SYSTEM RESET, H;NORMAL OPERATION)
SYNCN ;SYNCHRONIZATION MODE SELECT
(L;FORCED SYNCHRONIZATION MODE, H;JITTER FREE MODE)
XTI ;OSCILLATOR INPUT TERMINAL

OUTPUT

BCKO ;OUTPUT BIT CLOCK
CKO ;OSCILLATOR BLOCK OUTPUT CLOCK
DG ;DEGLITCH OUTPUT
DOL ;Lch DATA OUTPUT
DOR ;Rch DATA OUTPUT
LRCI ;INPUT DATA SAMPLING RATE(fs) CLOCK
WCKO ;OUTPUT WORD CLOCK
XTO ;OSCILLATOR OUTPUT TERMINAL

SN74HC04AN (TI)
SN74HC04ANS (TI) FLAT PACKAGE

C-MOS HEX INVERTERS
- TOP VIEW -

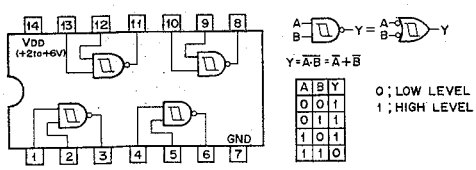


NOTE :

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

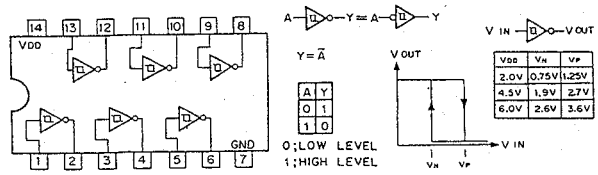
SN74HC132ANS (TI) FLAT PACKAGE

C-MOS 2-INPUT NAND SCHMITT TRIGGER
- TOP VIEW -



SN74HC14ANS (TI) FLAT PACKAGE

C-MOS HEX SCHMITT TRIGGER INVERTERS
- TOP VIEW -



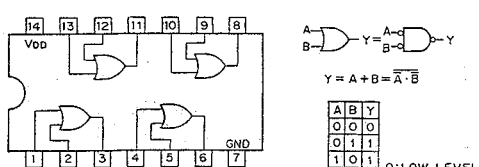
VDD	VN	VP
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

NOTE :

TYPE	VDD
TC74AC14 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC32ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT OR GATES
- TOP VIEW -

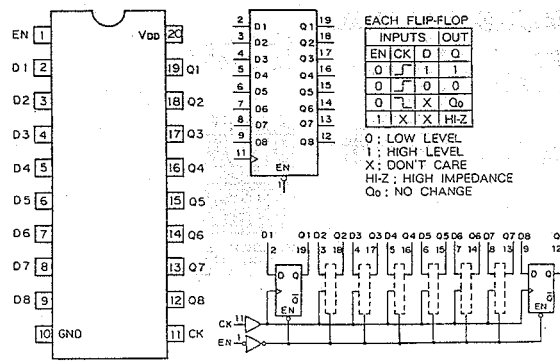


NOTE :

TYPE	VDD
TC74AC32 TYPE TC74VHC32	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC574ANS (TI) FLAT PACKAGE
SN74HCT574ANS (TI) FLAT PACKAGE

C-MOS 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP
- TOP VIEW -



EACH FLIP-FLOP

INPUTS			OUT
EN	CK	D	Q
0	↑	1	1
0	↑	0	0
0	↓	X	Q0
1	X	X	HI-Z

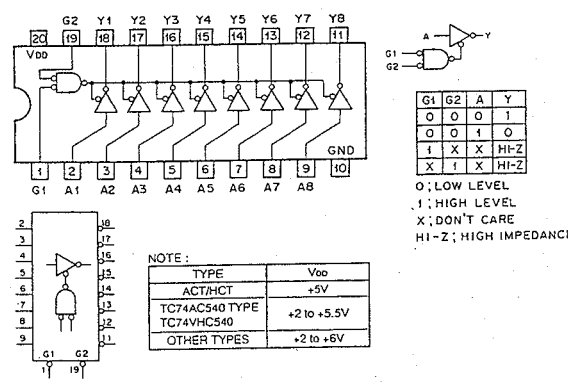
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
Q0 ; NO CHANGE

NOTE :

TYPE	VDD
74AC/74HC	+2 to +6V
74ACT/74FCT /74HCT	+5V
TC74AC574F TC74VHC574	+2 to +5.5V

SN74HCT540ANS (TI) FLAT PACKAGE

C-MOS 3-STATE INVERTING BUFFER/LINE DRIVER/LINE RECEIVER
- TOP VIEW -



G1	G2	A	Y
0	0	0	1
0	0	1	0
1	X	X	HI-Z
X	1	X	HI-Z

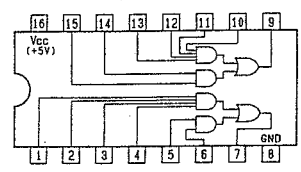
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

NOTE :

TYPE	VDD
ACT/HCT	+5V
TC74AC540 TYPE TC74VHC540	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN75123N (TI)

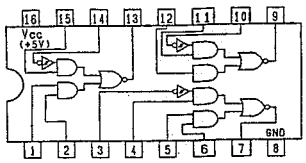
DUAL LINE DRIVER AND TRIPLE LINE RECEIVER
- TOP VIEW -

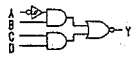


SN75124N (TI)

TRIPLE LINE RECEIVER

- TOP VIEW -





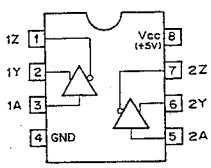
A	B	C	D	Y
X	X	1	1	0
0	1	X	X	0
1	X	0	X	1
X	0	0	X	1
1	X	X	0	1
X	0	X	0	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN75158PS (TI)

DUAL DIFFERENTIAL LINE DRIVE

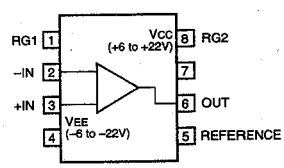
- TOP VIEW -



SSM-2017P (PMI)

SELF-CONTAINED AUDIO PREAMPLIFIER

- TOP VIEW -

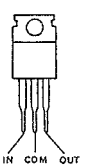


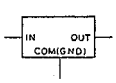
TA7805S (TOSHIBA) +5V

TA7812S (TOSHIBA) +12V

POSITIVE VOLTAGE REGULATOR (0.5A)

- SIDE VIEW -

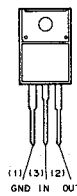


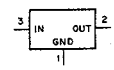


TA79005S (TOSHIBA) -5V

TA79012S (TOSHIBA) -12V

NEGATIVE VOLTAGE REGULATOR (500 mA)

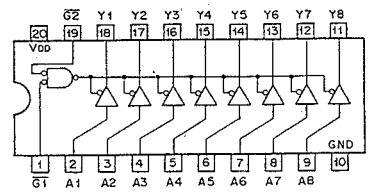


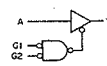


TC74AC541F (TOSHIBA) FLAT PACKAGE

C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS

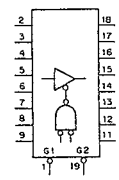
- TOP VIEW -





G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



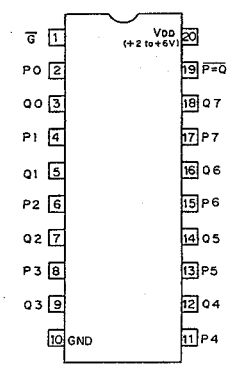
NOTE :

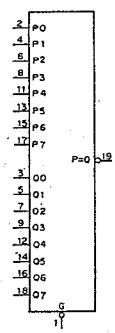
TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V
ACT/BCT/HCT	+5V

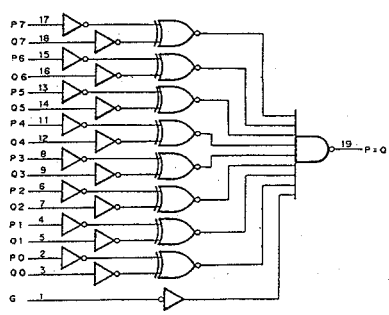
TC74HC688AF (TOSHIBA) FLAT PACKAGE

C-MOS 8-BIT EQUALITY DETECTOR

- TOP VIEW -







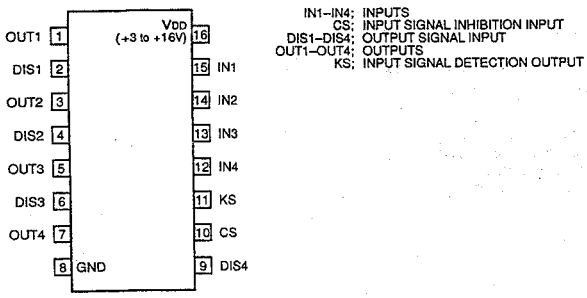
INPUTS		OUTPUT
P, Q	G	P = Q
P=Q	0	0
P>Q	0	1
P<Q	0	1
X	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

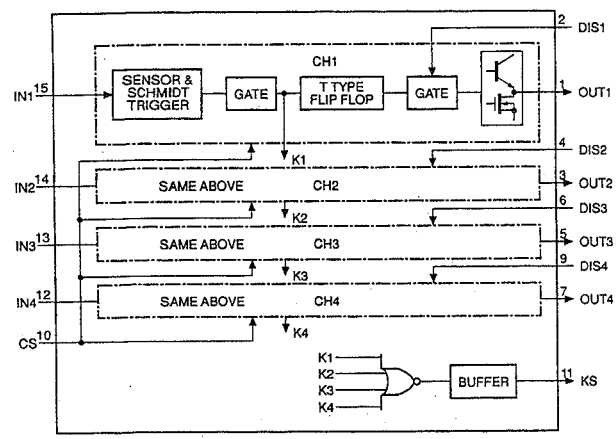
TC9130P (TOSHIBA)

C-MOS 4 CHANNEL CYCLIC TYPE TOUCH SWITCH

– TOP VIEW –



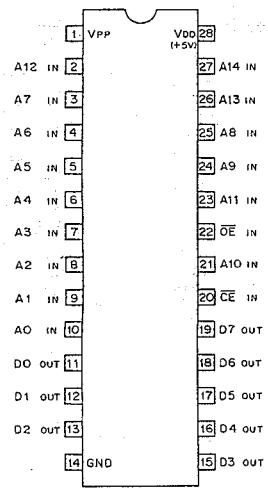
IN1–IN4: INPUTS
CS: INPUT SIGNAL INHIBITION INPUT
DIS1–DIS4: OUTPUT SIGNAL INPUT
OUT1–OUT4: OUTPUTS
KS: INPUT SIGNAL DETECTION OUTPUT

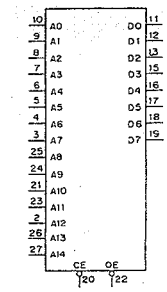


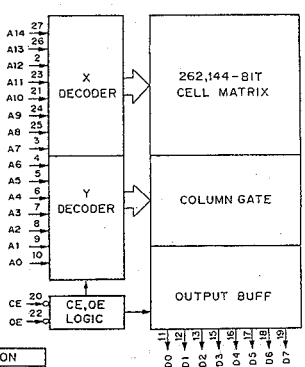
TMS27C256-15JL (TI)

C-MOS 256K (32K×8)-BIT ERASABLE PROM WITH 3-STATE OUTPUS

– TOP VIEW –







A0 – A14 : ADDRESS INPUT
$\overline{CE}$: CHIP ENABLE INPUT
D0 – D7 : DATA OUTPUT
$\overline{OE}$: OUTPUT ENABLE INPUT
V_{PP} : PROGRAM POWER SUPPLY

An	$\overline{CE}$	$\overline{OE}$	V_{PP}	Dn	FUNCTION
An	0	0	+ 5V	D_{OUT}	READ
An	0	1	+ 5V	HI-Z	OUTPUT DISABLE
X	1	X	+ 5V	HI-Z	STANDBY
An	0	1	+ 21V	D_{IN}	PGM
An	0	0	+ 21V	D_{OUT}	PGM VERIFY
X	1	1	+ 21V	HI-Z	PGM INH

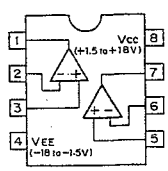
0 : LOW LEVEL
1 : HIGH LEVEL
X: DON'T CARE
HI-Z : HIGH IMPEDANCE

TL062CP (TI)

TL072CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER (JFET INPUT)

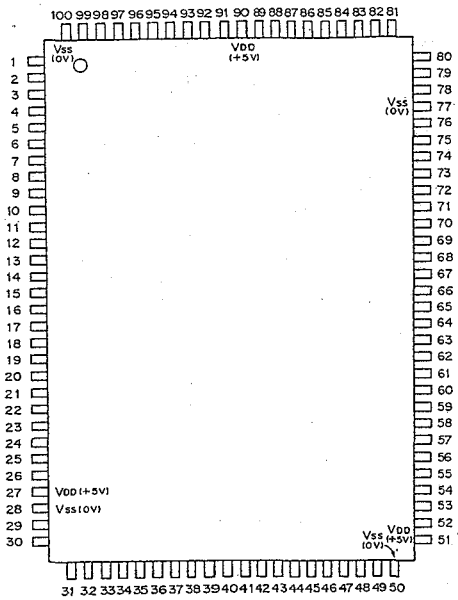
– TOP VIEW –



TMPZ84C011BF-6 (TOSHIBA)

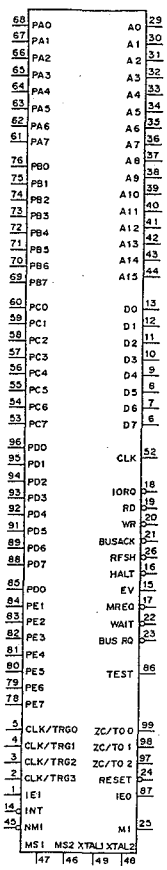
C-MOS 8 BIT MICROPROCESSOR

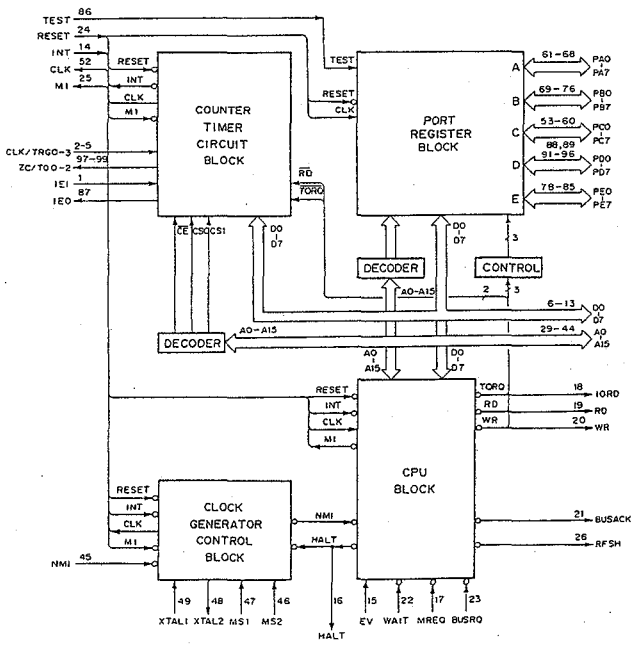
– TOP VIEW –



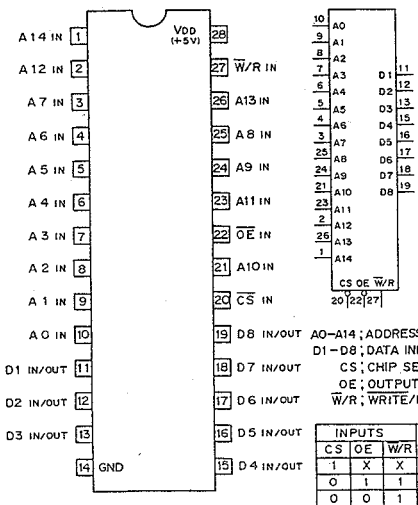
A0–A15	3-STATE ADDRESS BUS OUTPUTS
BUSACK	BUS ACKNOWLEDGE OUTPUT
BUS REQ	BUS REQUEST INPUT
CLK	CLOCK OUTPUT
CLK/TRG0–3	EXTERNAL CLOCK / TIMER TRIGGER0–3 INPUTS
D0–D7	3-STATE DATA BUS INPUTS/OUTPUTS
EV	EVALUATER INPUT
HALT	HALT OUTPUT
IEI/IEO	CTC INTERRUPT ENABLE INPUT/OUTPUT
INT	MASKABLE INTERRUPT REQUEST INPUT
IORQ	3-STATE I/O REQUEST OUTPUT
M1	3-STATE MACHINE CYCLE 1 OUTPUT
MREQ	3-STATE REQUEST OUTPUT
MS1/MS2	MODE SELECT 1/2 INPUTS
NMI	NON-MASKABLE INTERRUPT REQUEST INPUT
PA0–PA7, PB0–PB7, PC0–PC7, PD0–PD7, PE0–PE7	3-STATE I/O PORT
RD	3-STATE READ OUTPUT
RESET	RESET INPUT
RFSH	REFRESH OUTPUT
TEST	TEST INPUT
WAIT	WAIT REQUEST INPUT
WR	3-STATE WRITE OUTPUT
ZC/TO0–2	ZERO COUNT/TIME OUT 0–2 OUTPUTS

NO.	IN	OUT	SYMBOL	NO.	IN	OUT	SYMBOL
1	○		IEI	51			Vcc
2	○		CLK/TRG3	52		○	CLK
3	○		CLK/TRG2	53	○	○	PC7
4	○		CLK/TRG1	54	○	○	PC6
5	○		CLK/TRG0	55	○	○	PC5
6	○	○	D7	56	○	○	PC4
7	○	○	D6	57	○	○	PC3
8	○	○	D5	58	○	○	PC2
9	○	○	D4	59	○	○	PC1
10	○	○	D3	60	○	○	PC0
11	○	○	D2	61	○	○	PA7
12	○	○	D1	62	○	○	PA6
13	○	○	D0	63	○	○	PA5
14	○		$\overline{INT}$	64	○	○	PA4
15	○		EV	65	○	○	PA3
16		○	$\overline{HALT}$	66	○	○	PA2
17		○	$\overline{MREQ}$	67	○	○	PA1
18		○	$\overline{IORQ}$	68	○	○	PA0
19		○	$\overline{RD}$	69	○	○	PB7
20		○	$\overline{WR}$	70	○	○	PB6
21		○	$\overline{BUSACK}$	71	○	○	PB5
22	○		$\overline{WAIT}$	72	○	○	PB4
23	○		$\overline{BUSREQ}$	73	○	○	PB3
24	○		$\overline{RESET}$	74	○	○	PB2
25		○	$\overline{M1}$	75	○	○	PB1
26		○	$\overline{RFSH}$	76	○	○	PB0
27			Vcc	77			Vss
28			Vss	78	○	○	PE7
29		○	A0	79	○	○	PE6
30		○	A1	80	○	○	PE5
31		○	A2	81	○	○	PE4
32		○	A3	82	○	○	PE3
33		○	A4	83	○	○	PE2
34		○	A5	84	○	○	PE1
35		○	A6	85	○	○	PE0
36		○	A7	86	○		TEST
37		○	A8	87		○	IEO
38		○	A9	88	○	○	PD7
39		○	A10	89	○	○	PD6
40		○	A11	90			Vcc
41		○	A12	91	○	○	PD5
42		○	A13	92	○	○	PD4
43		○	A14	93	○	○	PD3
44		○	A15	94	○	○	PD2
45	○		$\overline{NMI}$	95	○	○	PD1
46	○		MS2	96	○	○	PD0
47	○		MS1	97		○	ZC/TO2
48		○	XTAL2	98		○	ZC/TO1
49	○		XTAL1	99		○	ZC/TO0
50			Vss	100			Vss


PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
PE0 PE1 PE2 PE3 PE4 PE5 PE6 PE7
CLK/TRG0 CLK/TRG1 CLK/TRG2 CLK/TRG3
IEI INT NMI
MS1 MS2 XTAL1 XTAL2
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15
D0 D1 D2 D3 D4 D5 D6 D7
CLK
IORQ RD WR BUSACK RFSH HALT EV MREQ WAIT BUS RQ
TEST
ZC/TO0 ZC/TO1 ZC/TO2
RESET
IEO
M1



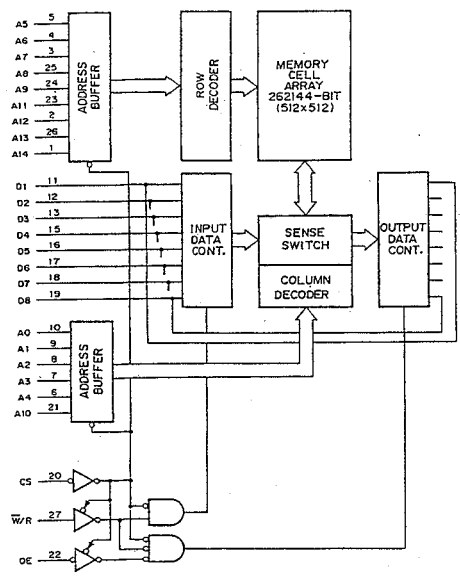
UPD43256AGU-10L (NEC) FLAT PACKAGE
UPD43256AGU-10LL (NEC)
C-MOS 262144-BIT (32768×8) STATIC RAM
– TOP VIEW –



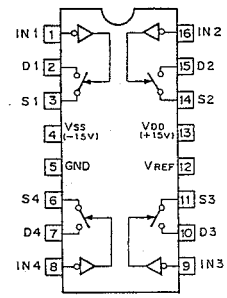
A0–A14 ; ADDRESS INPUTS
D1–D8 ; DATA INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
OE ; OUTPUT ENABLE INPUT
W/R ; WRITE/READ INPUT

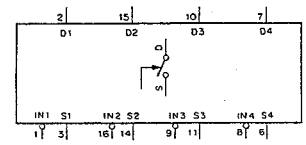
INPUTS			MODE	OUTPUT STATUS
CS	OE	W/R		
1	X	X	NO SELECTION	HI-Z
0	1	1	OUTPUT DISABLE	
0	0	1	READ	D OUT
0	X	0	WRITE	D IN

0 ; LOW LEVEL X ; DON'T CARE
1 ; HIGH LEVEL HI-Z ; HIGH IMPEDANCE



UPD5201C (NEC)
C-MOS QUAD SPST ANALOG SWITCH
– TOP VIEW –





IN	SWITCH
0	ON
1	OFF

0 : LOW LEVEL
1 : HIGH LEVEL

D1-D4 : DRAIN
S1-S4 : SOURCE
SPST : SINGLE-POLE, SINGLE-THROW

SECTION 9
SPARE PARTS

9-1. 補修用部品注意事項

(1) 安全重要部品

回路図、分解図、電気部品表中、⚠印の部品は安全性を維持するために重要な部品です。従ってこれらの部品を交換するときには必ず指定の部品と交換して下さい。

(2) 部品の共通化

ソニーから供給される部品はセットに実装されているものと異なることがあります。これは部品の共通化、改良等によるものです。
分解図や電気部品表には現時点での共通化された部品が記載されています。

(3) 部品の在庫

部品表のSP (Supply code) 欄にoで示される部品は交換頻度が低い部品ですので在庫していないことがあり、納期が長くなることがあります。

(4) コンデンサ、インダクタ、抵抗の単位

回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されています。

コンデンサ　：μF
インダクタ　：μH
抵抗　　：Ω

NOTES ON REPAIR PARTS

(1) Safety Related Components Warning

Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation.
Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standarzation of genuine parts".
This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

(3) Stock of Parts

Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Units for Capacitors, Inductors and Resistors

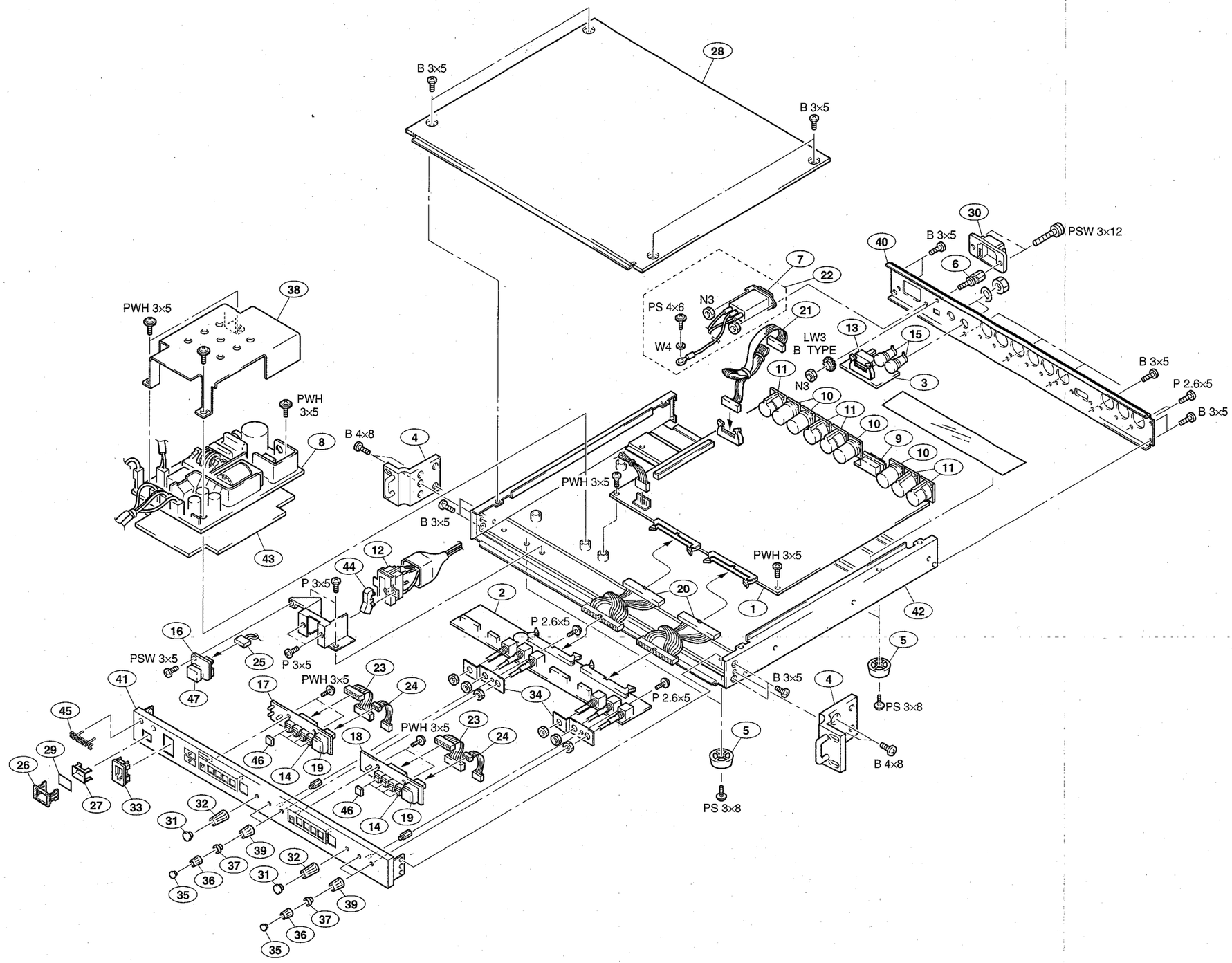
The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors : μF
Inductors : μH
Resistors : Ω

9-2. EXPLODED VIEW AND PARTS

No.	Part No.	SP	Description
1	A-8275-502-A	o	MOUNTED CIRCUIT BOARD, AD-101
2	A-8275-505-A	o	MOUNTED CIRCUIT BOARD, VR-176
3	A-8275-506-A	o	MOUNTED CIRCUIT BOARD, CN-942
4	X-2127-214-3	o	ANGLE (1U) ASSY, RACK
5	X-3556-910-0	s	FOOT ASSY, MF
6	X-4801-204-0	o	TERMINAL ASSY
7	⚠1-251-148-11	s	INLET, AC 3P, MALE
8	⚠1-413-950-11	s	REGULATOR, SWITCHING
9	1-563-771-11	s	CONNECTOR, D-SUB 15P, FEMALE
10	1-568-005-11	s	CONNECTOR, XLR 3P, MALE
11	1-568-006-11	s	CONNECTOR, XLR 3P, FEMALE
12	⚠1-570-384-11	s	SWITCH, ROCKER (AC POWER)
13	1-570-898-11	s	SWITCH, SLIDE
14	1-571-656-21	s	SWITCH, PUSH (WITH LED)
15	1-580-347-11	s	CONNECTOR, BNC
16	1-636-210-11	o	PRINTED CIRCUIT BOARD, DP-131
17	1-650-730-11	o	PRINTED CIRCUIT BOARD, SW-645
18	1-650-731-11	o	PRINTED CIRCUIT BOARD, SW-669
19	1-692-823-11	s	SWITCH, TACTIL
20	1-952-916-11	o	HARNESS, SUB (AD-SW)
21	1-952-917-11	o	HARNESS, SUB (AD-CN)
22	⚠1-952-918-12	o	HARNESS, (PS-AD1)
23	1-952-920-11	o	HARNESS, SUB (SW-VR1)
24	1-952-921-11	o	HARNESS, SUB (SW-VR2)
25	1-952-922-11	o	HARNESS, SUB (DP-VR)
26	2-139-192-01	s	FRAME, INDICATOR WINDOW
27	2-139-193-02	s	WINDOW, INDICATOR
28	2-182-935-01	o	PLATE (D350),TOP
29	2-249-353-00	s	COVER, LAMP
30	2-990-241-02	s	HOLDER (A), PLUG
31	3-180-426-01	s	KNOB CAP (DIA 13)
32	3-180-434-01	s	KNOB (DIA 13)
33	3-182-406-01	o	GUARD, POWER SW
34	3-183-488-01	o	BRACKET, VR
35	3-183-490-02	s	CAP (DIA 10), KNOB
36	3-183-491-01	s	KNOB (DIA 10)
37	3-183-492-02	s	CAP (SHAFT DIA 15), KNOB
38	3-183-497-03	o	COVER, SR
39	3-183-499-01	s	KNOB (SHAFT DIA 15)
40	3-183-502-03	o	PANEL, REAR
41	3-183-503-03	o	PANEL, FRONT
42	3-183-505-03	o	CHASSIS
43	3-184-052-01	o	INSULATOR, SR
44	3-688-814-01	s	CAP, SWITCH
45	3-718-322-02	o	EMBLEM, SONY
46	4-928-315-01	s	KEY TOP
47	8-719-921-06	s	DIODE HLMP-2965

DMA-2000 DMA-2000



9 - 3

9-3. ELECTRICAL PARTS LIST

CAPACITOR, CHIP CERAMIC

Part No.	SP	Description
1-163-038-00	s	CAP, CHIP CERAMIC 0.1 25V
1-163-243-11	s	CAP, CHIP CERAMIC 47PF 5% 50V

CAPACITOR, ELECTROLYTIC

Part No.	SP	Description
1-124-903-11	s	CAP, ELECT 1 20% 50V
1-124-915-11	s	CAP, ELECT 10 20% 63V
1-124-916-11	s	CAP, ELECT 22 20% 63V
1-124-910-11	s	CAP, ELECT 47 20% 50V
1-124-927-11	s	CAP, ELECT 4.7 20% 100V

RESISTOR, CHIP METAL

Part No.	SP	Description
1-216-603-11	s	RES, CHIP METAL 10 1% 1/10W
1-216-615-11	s	RES, CHIP METAL 33 0.5% 1/10W
1-216-619-11	s	RES, CHIP METAL 47 1% 1/10W
1-216-628-11	s	RES, CHIP METAL 110 0.5% 1/10W
1-216-635-11	s	RES, CHIP METAL 220 1% 1/10W
1-216-643-11	s	RES, CHIP METAL 470 1% 1/10W
1-216-650-11	s	RES, CHIP METAL 910 1% 1/10W
1-216-651-11	s	RES, CHIP METAL 1.0k 1% 1/10W
1-216-653-11	s	RES, CHIP METAL 1.2k 1% 1/10W
1-216-654-11	s	RES, CHIP METAL 1.3K 0.5% 1/10W
1-216-659-11	s	RES, CHIP METAL 2.2k 1% 1/10W
1-216-660-11	s	RES, CHIP METAL 2.4k 1% 1/10W
1-216-663-11	s	RES, CHIP METAL 3.3k 1% 1/10W
1-216-668-11	s	RES, CHIP METAL 5.1K 0.5% 1/10W
1-216-671-11	s	RES, CHIP METAL 6.8k 1% 1/10W
1-216-675-11	s	RES, CHIP METAL 10k 1% 1/10W
1-216-679-11	s	RES, CHIP METAL 15k 1% 1/10W
1-216-681-11	s	RES, CHIP METAL 18k 1% 1/10W
1-216-682-11	s	RES, CHIP METAL 20k 1% 1/10W
1-216-687-11	s	RES, CHIP METAL 33k 1% 1/10W
1-216-688-11	s	RES, CHIP METAL 36k 1% 1/10W
1-216-689-11	s	RES, CHIP METAL 39k 1% 1/10W
1-216-691-11	s	RES, CHIP METAL 49k 1% 1/10W
1-216-694-11	s	RES, CHIP METAL 62k 1% 1/10W
1-216-697-11	s	RES, CHIP METAL 82k 1% 1/10W
1-216-699-11	s	RES, CHIP METAL 100k 1% 1/10W

AD-101 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-502-A	o	MOUNTED CIRCUIT BOARD, AD-101
(This assembly includes the following parts.)			
2pcs	7-682-548-04	s	SCREW +B 3X8
C24	1-136-169-00	s	MYLAR 0.22uF 5% 50V
C25	1-136-169-00	s	MYLAR 0.22uF 5% 50V
C26	1-102-963-00	s	CERAMIC 33PF 5% 50V
C27	1-102-963-00	s	CERAMIC 33PF 5% 50V
C28	1-102-963-00	s	CERAMIC 33PF 5% 50V
C100	1-126-941-11	s	ELECT 470uF 20% 25V
C101	1-126-233-11	s	ELECT 22uF 20% 50V
C102	1-102-963-00	s	CERAMIC 33PF 5% 50V
C106	1-130-479-00	s	MYLAR 0.0047uF 5% 50V
C108	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C109	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C110	1-137-505-11	s	FILM 220PF 5% 100V
C111	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C112	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C113	1-164-346-11	s	CERAMIC 1uF 16V
C115	1-164-346-11	s	CERAMIC 1uF 16V
C116	1-164-346-11	s	CERAMIC 1uF 16V
C117	1-164-346-11	s	CERAMIC 1uF 16V
C130	1-126-924-11	s	ELECT 330uF 20% 10V
C200	1-126-941-11	s	ELECT 470uF 20% 25V
C201	1-126-233-11	s	ELECT 22uF 20% 50V
C202	1-102-963-00	s	CERAMIC 33PF 5% 50V
C206	1-130-479-00	s	MYLAR 0.0047uF 5% 50V
C208	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C209	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C210	1-137-505-11	s	FILM 220PF 5% 100V
C211	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C212	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C213	1-164-346-11	s	CERAMIC 1uF 16V
C215	1-164-346-11	s	CERAMIC 1uF 16V
C216	1-164-346-11	s	CERAMIC 1uF 16V
C217	1-164-346-11	s	CERAMIC 1uF 16V
C304	1-13@		
C305	1-102-973-00	s	CERAMIC 100PF 5% 50V
C306	1-102-973-00	s	CERAMIC 100PF 5% 50V
C307	1-124-962-11	s	ELECT 2200uF 20% 25V
C309	1-102-963-00	s	CERAMIC 33PF 5% 50V
C317	1-102-963-00	s	CERAMIC 33PF 5% 50V
C318	1-126-940-11	s	ELECT 330uF 20% 25V
C324	1-126-233-11	s	ELECT 22uF 20% 50V
C325	1-126-233-11	s	ELECT 22uF 20% 50V
C326	1-102-973-00	s	CERAMIC 100PF 5% 50V
C327	1-102-973-00	s	CERAMIC 100PF 5% 50V
C328	1-102-973-00	s	CERAMIC 100PF 5% 50V
C329	1-101-880-00	s	CERAMIC 47PF 5% 50V
C330	1-101-880-00	s	CERAMIC 47PF 5% 50V
C334	1-102-963-00	s	CERAMIC 33PF 5% 50V
C345	1-102-963-00	s	CERAMIC 33PF 5% 50V
C353	1-102-963-00	s	CERAMIC 33PF 5% 50V
C363	1-126-947-11	s	ELECT 47uF 20% 35V
C364	1-126-947-11	s	ELECT 47uF 20% 35V
C369	1-124-962-11	s	ELECT 2200uF 20% 25V
C370	1-126-924-11	s	ELECT 330uF 20% 10V
C372	1-102-973-00	s	CERAMIC 100PF 5% 50V
C373	1-102-973-00	s	CERAMIC 100PF 5% 50V

NOTE: Please see page 9-5 for the parts that are not listed in the parts list.

(AD-101 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C374	1-102-973-00	s	CERAMIC 100PF 5% 50V
C375	1-102-973-00	s	CERAMIC 100PF 5% 50V
C376	1-102-973-00	s	CERAMIC 100PF 5% 50V
C377	1-102-973-00	s	CERAMIC 100PF 5% 50V
C381	1-102-973-00	s	CERAMIC 100PF 5% 50V
C382	1-102-973-00	s	CERAMIC 100PF 5% 50V
C387	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C390	1-126-940-11	s	ELECT 330uF 20% 25V
C396	1-102-963-00	s	CERAMIC 33PF 5% 50V
C397	1-102-963-00	s	CERAMIC 33PF 5% 50V
C403	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C504	1-130-479-00	s	MYLAR 0.0047uF 5% 50V
C505	1-102-973-00	s	CERAMIC 100PF 5% 50V
C506	1-102-973-00	s	CERAMIC 100PF 5% 50V
C507	1-124-962-11	s	ELECT 2200uF 20% 25V
C509	1-102-963-00	s	CERAMIC 33PF 5% 50V
C517	1-102-963-00	s	CERAMIC 33PF 5% 50V
C524	1-126-233-11	s	ELECT 22uF 20% 50V
C525	1-126-233-11	s	ELECT 22uF 20% 50V
C526	1-102-973-00	s	CERAMIC 100PF 5% 50V
C527	1-102-973-00	s	CERAMIC 100PF 5% 50V
C528	1-102-973-00	s	CERAMIC 100PF 5% 50V
C529	1-101-880-00	s	CERAMIC 47PF 5% 50V
C530	1-101-880-00	s	CERAMIC 47PF 5% 50V
C534	1-102-963-00	s	CERAMIC 33PF 5% 50V
C545	1-102-963-00	s	CERAMIC 33PF 5% 50V
C553	1-102-963-00	s	CERAMIC 33PF 5% 50V
C563	1-126-947-11	s	ELECT 47uF 20% 35V
C564	1-126-947-11	s	ELECT 47uF 20% 35V
C569	1-124-962-11	s	ELECT 2200uF 20% 25V
C572	1-102-973-00	s	CERAMIC 100PF 5% 50V
C573	1-102-973-00	s	CERAMIC 100PF 5% 50V
C574	1-102-973-00	s	CERAMIC 100PF 5% 50V
C575	1-102-973-00	s	CERAMIC 100PF 5% 50V
C576	1-102-973-00	s	CERAMIC 100PF 5% 50V
C577	1-102-973-00	s	CERAMIC 100PF 5% 50V
C581	1-102-973-00	s	CERAMIC 100PF 5% 50V
C582	1-102-973-00	s	CERAMIC 100PF 5% 50V
C596	1-102-963-00	s	CERAMIC 33PF 5% 50V
C603	1-164-299-11	s	CERAMIC, CHIP 22uF 10% 25V
C1001	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C1002	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C1003	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C1004	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C1005	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C1006	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C1310	1-126-941-11	s	ELECT 470uF 20% 25V
C1311	1-126-941-11	s	ELECT 470uF 20% 25V
C1312	1-126-940-11	s	ELECT 330uF 20% 25V
C1313	1-126-940-11	s	ELECT 330uF 20% 25V
C1314	1-126-947-11	s	ELECT 47uF 20% 35V
C1315	1-126-947-11	s	ELECT 47uF 20% 35V
C1318	1-126-948-11	s	ELECT 100uF 20% 35V
C1319	1-126-948-11	s	ELECT 100uF 20% 35V
C1320	1-126-947-11	s	ELECT 47uF 20% 35V
C1321	1-126-947-11	s	ELECT 47uF 20% 35V
C1324	1-126-948-11	s	ELECT 100uF 20% 35V
C1325	1-126-948-11	s	ELECT 100uF 20% 35V
C1344	1-126-947-11	s	ELECT 47uF 20% 35V

(AD-101 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C1347	1-126-233-11	s	ELECT 22uF 20% 50V
C1348	1-126-948-11	s	ELECT 100uF 20% 35V
C1355	1-126-947-11	s	ELECT 47uF 20% 35V
C1356	1-126-233-11	s	ELECT 22uF 20% 50V
C1357	1-126-948-11	s	ELECT 100uF 20% 35V
C1501	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C1506	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C1507	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C1508	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C1515	1-126-941-11	s	ELECT 470uF 20% 25V
C1521	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C1526	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C1527	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C1528	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C1559	1-126-940-11	s	ELECT 330uF 20% 25V
C1560	1-126-940-11	s	ELECT 330uF 20% 25V
C1561	1-126-940-11	s	ELECT 330uF 20% 25V
C1562	1-126-940-11	s	ELECT 330uF 20% 25V
CN2	1-695-254-11	o	HEADER (RIGHT ANGLE TYPE) 50P, MALE
CN3	1-695-254-11	o	HEADER (RIGHT ANGLE TYPE) 50P, MALE
CN4	1-695-965-11	o	HEADER (STRAIGHT) 10P, MALE
CN11	1-564-002-11	s	CONNECTOR 3P, MALE
CN12	1-564-002-11	s	CONNECTOR 3P, MALE
CN13	1-564-002-11	s	CONNECTOR 3P, MALE
CN14	1-564-002-11	s	CONNECTOR 3P, MALE
CN21	1-564-002-11	s	CONNECTOR 3P, MALE
CN22	1-564-002-11	s	CONNECTOR 3P, MALE
CN23	1-564-002-11	s	CONNECTOR 3P, MALE
CN24	1-564-002-11	s	CONNECTOR 3P, MALE
CN31	1-568-006-11	s	CONNECTOR, XLR 3P, FEMALE
CN32	1-568-005-11	s	CONNECTOR, XLR 3P, MALE
CN33	1-568-005-11	s	CONNECTOR, XLR 3P, MALE
CN34	1-568-006-11	s	CONNECTOR, XLR 3P, FEMALE
CN35	1-568-006-11	s	CONNECTOR, XLR 3P, FEMALE
CN36	1-568-005-11	s	CONNECTOR, XLR 3P, MALE
CN37	1-568-005-11	s	CONNECTOR, XLR 3P, MALE
CN38	1-568-006-11	s	CONNECTOR, XLR 3P, FEMALE
CN39	1-568-006-11	s	CONNECTOR, XLR 3P, FEMALE
CN40	1-563-771-11	s	CONNECTOR, D-SUB 15P, FEMALE
CN50	1-566-312-11	s	CONNECTOR, 50P, MALE
CN602	1-564-915-11	o	CONNECTOR, VH 7P, MALE
CNI1	1-526-659-00	o	SOCKET, IC 28P
CNI113	1-526-659-00	o	SOCKET, IC 28P
CNI115	1-526-656-21	s	SOCKET, IC (DP) 20P
D1	8-719-948-47	s	DIODE HSM88AS
D2	8-719-948-47	s	DIODE HSM88AS
D3	8-719-801-78	s	DIODE 1SS184
D4	8-719-948-47	s	DIODE HSM88AS
D5	8-719-948-47	s	DIODE HSM88AS
D6	8-719-948-47	s	DIODE HSM88AS
D7	8-719-948-47	s	DIODE HSM88AS
D8	8-719-948-47	s	DIODE HSM88AS
D100	8-719-911-19	s	DIODE 1SS119
D101	8-719-801-78	s	DIODE 1SS184
D102	8-719-801-78	s	DIODE 1SS184
D201	8-719-801-78	s	DIODE 1SS184
D202	8-719-801-78	s	DIODE 1SS184
D301	8-719-109-97	s	DIODE RD6.8EB1

NOTE: Please see page 9-5 for the parts that are not listed in the parts list.

(AD-101 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D302	8-719-109-97	s	DIODE RD6.8EB1
D303	8-719-109-97	s	DIODE RD6.8EB1
D304	8-719-109-97	s	DIODE RD6.8EB1
D305	8-719-801-78	s	DIODE 1SS184
D310	8-719-110-41	s	DIODE RD15ES-B2
D311	8-719-110-41	s	DIODE RD15ES-B2
D312	8-719-110-41	s	DIODE RD15ES-B2
D313	8-719-110-41	s	DIODE RD15ES-B2
D314	8-719-801-78	s	DIODE 1SS184
D315	8-719-801-78	s	DIODE 1SS184
D320	8-719-200-02	s	DIODE 10E2
D321	8-719-200-02	s	DIODE 10E2
D322	8-719-200-02	s	DIODE 10E2
D323	8-719-200-02	s	DIODE 10E2
D324	8-719-801-78	s	DIODE 1SS184
D325	8-719-801-78	s	DIODE 1SS184
D326	8-719-801-78	s	DIODE 1SS184
D327	8-719-801-78	s	DIODE 1SS184
D400	8-719-812-41	s	LED TLR124, RED
D501	8-719-109-97	s	DIODE RD6.8EB1
D502	8-719-109-97	s	DIODE RD6.8EB1
D503	8-719-109-97	s	DIODE RD6.8EB1
D504	8-719-109-97	s	DIODE RD6.8EB1
D505	8-719-801-78	s	DIODE 1SS184
D510	8-719-110-41	s	DIODE RD15ES-B2
D511	8-719-110-41	s	DIODE RD15ES-B2
D512	8-719-110-41	s	DIODE RD15ES-B2
D513	8-719-110-41	s	DIODE RD15ES-B2
D514	8-719-801-78	s	DIODE 1SS184
D515	8-719-801-78	s	DIODE 1SS184
D520	8-719-200-02	s	DIODE 10E2
D521	8-719-200-02	s	DIODE 10E2
D522	8-719-200-02	s	DIODE 10E2
D523	8-719-200-02	s	DIODE 10E2
D524	8-719-801-78	s	DIODE 1SS184
D525	8-719-801-78	s	DIODE 1SS184
D526	8-719-801-78	s	DIODE 1SS184
D527	8-719-801-78	s	DIODE 1SS184
D601	8-719-801-78	s	DIODE 1SS184
D602	8-719-104-34	s	DIODE 1S2835
D1502	8-719-911-19	s	DIODE 1SS119
DD301	1-647-398-11	s	CONVERTER, DC-DC
FB1	1-412-694-11	s	INDUCTOR, BEED
FB2	1-412-694-11	s	INDUCTOR, BEED
FB3	1-412-694-11	s	INDUCTOR, BEED
FB301	1-412-694-11	s	INDUCTOR, BEED
FB302	1-412-694-11	s	INDUCTOR, BEED
FB303	1-412-694-11	s	INDUCTOR, BEED
FB304	1-412-694-11	s	INDUCTOR, BEED
FB305	1-412-694-11	s	INDUCTOR, BEED
FB306	1-412-694-11	s	INDUCTOR, BEED
FB313	1-412-694-11	s	INDUCTOR, BEED
FB314	1-412-694-11	s	INDUCTOR, BEED
FB501	1-412-694-11	s	INDUCTOR, BEED
FB502	1-412-694-11	s	INDUCTOR, BEED
FB503	1-412-694-11	s	INDUCTOR, BEED
FB504	1-412-694-11	s	INDUCTOR, BEED

(AD-101 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
FB505	1-412-694-11	s	INDUCTOR, BEED
FB506	1-412-694-11	s	INDUCTOR, BEED
FB513	1-412-694-11	s	INDUCTOR, BEED
FB514	1-412-694-11	s	INDUCTOR, BEED
FL401	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
FL1301	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
FL1302	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
IC1	8-759-197-36	s	IC PCM1760P
IC2	8-759-197-35	s	IC DF1760P
IC3	8-759-231-53	s	IC TA7805S
IC4	8-759-245-79	s	IC TA79005S
IC6	8-759-985-18	s	IC 74AC08SJ
IC100	8-759-072-59	s	IC TMPZ84C011BF-6
IC101	8-759-900-72	s	IC NE5532P
IC102	8-759-926-82	s	IC SN74HC574ANS
IC103	8-759-908-16	s	IC TL072CPS
IC110	8-759-062-88	s	IC CXD8277Q
IC111	8-759-092-81	s	IC SN75158PS
IC112	8-759-926-07	s	IC SN74HC132NS
IC113	Pending		
IC114	8-759-151-04	s	IC UPD43256AGU-10LL
IC115	8-759-247-69	o	IC 16V8B-AD100#1V1.0
IC120	8-759-030-52	s	IC MC74F163AM
IC200	8-759-923-64	s	IC AM26LS32ACNS
IC201	8-759-900-72	s	IC NE5532P
IC202	8-759-926-82	s	IC SN74HC574ANS
IC203	8-759-908-16	s	IC TL072CPS
IC301	8-759-158-98	s	IC SSM-2017P
IC302	8-759-900-72	s	IC NE5532P
IC303	8-759-900-72	s	IC NE5532P
IC304	8-759-900-72	s	IC NE5532P
IC306	8-759-990-62	s	IC TL062CP
IC307	8-759-900-72	s	IC NE5532P
IC308	8-759-925-80	s	IC SN74HC14NS
IC309	8-759-231-58	s	IC M5F7812L
IC310	8-759-245-86	s	IC TA79012S
IC311	8-759-107-35	s	IC UPD5201C
IC312	8-759-107-35	s	IC UPD5201C
IC313	8-759-925-85	s	IC SN74HC32NS
IC320	1-808-838-11	s	HIC TAA-1S
IC340	8-759-900-72	s	IC NE5532P
IC341	8-759-900-72	s	IC NE5532P
IC390	8-759-925-74	s	IC TC74HC04NS
IC401	8-752-306-51	s	IC CX23065A
IC402	8-759-033-16	s	IC MC74F74M
IC404	8-759-244-75	s	IC TC74AC541F
IC405	8-759-030-52	s	IC MC74F163AM
IC406	8-759-030-52	s	IC MC74F163AM
IC407	8-759-927-23	s	IC SN74HCT574NS
IC408	8-759-927-17	s	IC SN74HCT540NS
IC409	8-759-033-02	s	IC MC74F04M
IC410	8-759-033-16	s	IC MC74F74M
IC501	8-759-158-98	s	IC SSM-2017P
IC502	8-759-900-72	s	IC NE5532P
IC503	8-759-900-72	s	IC NE5532P
IC504	8-759-900-72	s	IC NE5532P
IC506	8-759-990-62	s	IC TL062CP
IC507	8-759-900-72	s	IC NE5532P

NOTE: Please see page 9-5 for the parts that are not listed in the parts list.

(AD-101 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC508	8-759-925-80	s	IC SN74HC14NS
IC509	8-759-231-58	s	IC M5F7812L
IC510	8-759-245-86	s	IC TA79012S
IC511	8-759-107-35	s	IC UPD5201C
IC512	8-759-107-35	s	IC UPD5201C
IC513	8-759-925-85	s	IC SN74HC32NS
IC540	8-759-900-72	s	IC NE5532P
IC541	8-759-900-72	s	IC NE5532P
IC606	8-759-233-56	s	IC TC74HC688AF
IC804	8-759-069-38	s	IC CXD8278AQ
IC1310	8-759-708-05	s	IC NJM78L05A
IC1311	8-759-700-65	s	IC NJM79L05A
IC1312	8-759-708-05	s	IC NJM78L05A
IC1313	8-759-700-65	s	IC NJM79L05A
IC1341	8-759-096-82	s	IC SM5842AP
IC1342	8-759-253-90	s	IC PCM1702U-J
IC1343	8-759-253-90	s	IC PCM1702U-J
IC1501	8-759-900-72	s	IC NE5532P
IC1502	8-759-900-72	s	IC NE5532P
IC1521	8-759-900-72	s	IC NE5532P
IC1522	8-759-900-72	s	IC NE5532P
IC1551	1-808-838-11	s	HIC TAA-1S
IC1552	1-808-838-11	s	HIC TAA-1S
L301	1-409-339-00	s	COIL, CHOKE
Q101	8-729-800-43	s	TRANSISTOR 2SK152-3
Q102	8-729-800-43	s	TRANSISTOR 2SK152-3
Q103	8-729-800-43	s	TRANSISTOR 2SK152-3
Q201	8-729-800-43	s	TRANSISTOR 2SK152-3
Q202	8-729-800-43	s	TRANSISTOR 2SK152-3
Q203	8-729-800-43	s	TRANSISTOR 2SK152-3
Q301	8-729-900-87	s	TRANSISTOR DTC124XF
Q501	8-729-900-87	s	TRANSISTOR DTC124XF
Q1501	8-729-205-97	s	TRANSISTOR 2SC3668-Y
R101	1-216-017-00	s	METAL, CHIP 47 5% 1/10W
R104	1-215-445-00	s	METAL 10K 1% 1/6W
R105	1-215-445-00	s	METAL 10K 1% 1/6W
R106	1-215-409-00	s	METAL 330 1% 1/6W
R108	1-215-421-00	s	METAL 1K 1% 1/6W
R109	1-215-445-00	s	METAL 10K 1% 1/6W
R110	1-215-469-00	s	METAL 100K 1% 1/6W
R111	1-215-493-00	s	METAL 1M 1% 1/6W
R123	1-215-439-00	s	METAL 5.6K 1% 1/6W
R135	1-215-421-00	s	METAL 1K 1% 1/6W
R136	1-215-493-00	s	METAL 1M 1% 1/6W
R137	1-215-469-00	s	METAL 100K 1% 1/6W
R138	1-215-493-00	s	METAL 1M 1% 1/6W
R140	1-215-421-00	s	METAL 1K 1% 1/6W
R141	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R142	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R143	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R144	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R201	1-216-017-00	s	METAL, CHIP 47 5% 1/10W
R204	1-215-445-00	s	METAL 10K 1% 1/6W
R205	1-215-445-00	s	METAL 10K 1% 1/6W
R206	1-215-409-00	s	METAL 330 1% 1/6W
R208	1-215-421-00	s	METAL 1K 1% 1/6W
R209	1-215-445-00	s	METAL 10K 1% 1/6W
R210	1-215-469-00	s	METAL 100K 1% 1/6W

(AD-101 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R211	1-215-493-00	s	METAL 1M 1% 1/6W
R223	1-215-439-00	s	METAL 5.6K 1% 1/6W
R235	1-215-421-00	s	METAL 1K 1% 1/6W
R236	1-215-493-00	s	METAL 1M 1% 1/6W
R237	1-215-469-00	s	METAL 100K 1% 1/6W
R238	1-215-493-00	s	METAL 1M 1% 1/6W
R305	1-215-445-00	s	METAL 10K 1% 1/6W
R308	1-215-433-00	s	METAL 3.3K 1% 1/6W
R310	1-215-433-00	s	METAL 3.3K 1% 1/6W
R311	1-218-760-11	s	METAL 220K 0.5% 1/10W
R312	1-215-428-00	s	METAL 2K 1% 1/6W
R314	1-215-469-00	s	METAL 100K 1% 1/6W
R315	1-215-453-00	s	METAL 22K 1% 1/6W
R316	1-215-394-00	s	METAL 75 1% 1/6W
R317	1-215-394-00	s	METAL 75 1% 1/6W
R323	1-215-389-00	s	METAL 47 1% 1/6W
R337	1-215-447-00	s	METAL 12K 1% 1/6W
R338	1-215-445-00	s	METAL 10K 1% 1/6W
R339	1-215-445-00	s	METAL 10K 1% 1/6W
R340	1-215-435-00	s	METAL 3.9K 1% 1/6W
R341	1-215-435-00	s	METAL 3.9K 1% 1/6W
R342	1-215-433-00	s	METAL 3.3K 1% 1/6W
R344	1-215-433-00	s	METAL 3.3K 1% 1/6W
R345	1-218-760-11	s	METAL 220K 0.5% 1/10W
R346	1-215-428-00	s	METAL 2K 1% 1/6W
R348	1-218-776-11	s	METAL 1M 0.5% 1/10W
R349	1-215-455-00	s	METAL 27K 1% 1/6W
R350	1-215-425-00	s	METAL 1.5K 1% 1/6W
R351	1-218-776-11	s	METAL 1M 0.5% 1/10W
R370	1-215-394-00	s	METAL 75 1% 1/6W
R371	1-215-394-00	s	METAL 75 1% 1/6W
R372	1-215-469-00	s	METAL 100K 1% 1/6W
R382	1-215-433-00	s	METAL 3.3K 1% 1/6W
R391	1-215-433-00	s	METAL 3.3K 1% 1/6W
R392	1-215-433-00	s	METAL 3.3K 1% 1/6W
R393	1-215-433-00	s	METAL 3.3K 1% 1/6W
R406	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R410	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R505	1-215-445-00	s	METAL 10K 1% 1/6W
R508	1-215-433-00	s	METAL 3.3K 1% 1/6W
R510	1-215-433-00	s	METAL 3.3K 1% 1/6W
R511	1-218-760-11	s	METAL 220K 0.5% 1/10W
R512	1-215-428-00	s	METAL 2K 1% 1/6W
R537	1-215-447-00	s	METAL 12K 1% 1/6W
R538	1-215-445-00	s	METAL 10K 1% 1/6W
R539	1-215-445-00	s	METAL 10K 1% 1/6W
R540	1-215-435-00	s	METAL 3.9K 1% 1/6W
R541	1-215-435-00	s	METAL 3.9K 1% 1/6W
R542	1-215-433-00	s	METAL 3.3K 1% 1/6W
R544	1-215-433-00	s	METAL 3.3K 1% 1/6W
R545	1-218-760-11	s	METAL 220K 0.5% 1/10W
R546	1-215-428-00	s	METAL 2K 1% 1/6W
R548	1-218-776-11	s	METAL 1M 0.5% 1/10W
R549	1-215-455-00	s	METAL 27K 1% 1/6W
R550	1-215-425-00	s	METAL 1.5K 1% 1/6W
R551	1-218-776-11	s	METAL 1M 0.5% 1/10W
R591	1-215-433-00	s	METAL 3.3K 1% 1/6W
R592	1-215-433-00	s	METAL 3.3K 1% 1/6W
R593	1-215-433-00	s	METAL 3.3K 1% 1/6W

NOTE: Please see page 9-5 for the parts that are not listed in the parts list.

(AD-101 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R602	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R603	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1310	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R1311	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R1312	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R1313	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R1314	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R1315	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R1500	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R1531	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R1532	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R1555	1-215-394-00	s	METAL 75 1% 1/6W
R1556	1-215-394-00	s	METAL 75 1% 1/6W
R1557	1-215-394-00	s	METAL 75 1% 1/6W
R1558	1-215-394-00	s	METAL 75 1% 1/6W
R1561	1-215-394-00	s	METAL 75 1% 1/6W
R1562	1-215-394-00	s	METAL 75 1% 1/6W
R1563	1-215-394-00	s	METAL 75 1% 1/6W
R1564	1-215-394-00	s	METAL 75 1% 1/6W
RB1	1-232-984-11	s	RESISTOR BLOCK 33kx11
RB2	1-233-025-11	s	RESISTOR BLOCK 6.8kx2
RB100	1-235-195-00	s	RES BLOCK 10kx8
RB101	1-235-195-00	s	RES BLOCK 10kx8
RB102	1-235-195-00	s	RES BLOCK 10kx8
RB401	1-233-093-11	s	RESISTOR BLOCK 10kx6
RB402	1-233-093-11	s	RESISTOR BLOCK 10kx6
RL301	1-515-622-11	s	RELAY
RL501	1-515-622-11	s	RELAY
RV101	1-230-749-11	s	RES, ADJ CERMET 5K
RV102	1-228-763-00	s	RES, ADJ CERMET 5K
RV201	1-230-749-11	s	RES, ADJ CERMET 5K
RV202	1-228-763-00	s	RES, ADJ CERMET 5K
RV301	1-230-749-11	s	RES, ADJ CERMET 5K
RV302	1-230-744-11	s	RES, ADJ CERMET 100
RV303	1-230-747-11	s	RES, ADJ CERMET 1K
RV305	1-230-747-11	s	RES, ADJ CERMET 1K
RV306	1-230-749-11	s	RES, ADJ CERMET 5K
RV310	1-230-750-11	s	RES, ADJ CERMET 10K
RV501	1-230-749-11	s	RES, ADJ CERMET 5K
RV502	1-230-744-11	s	RES, ADJ CERMET 100
RV503	1-230-747-11	s	RES, ADJ CERMET 1K
RV505	1-230-747-11	s	RES, ADJ CERMET 1K
RV506	1-230-749-11	s	RES, ADJ CERMET 5K
RV1501	1-230-748-11	s	RES, ADJ CERMET 2K
RV1521	1-230-748-11	s	RES, ADJ CERMET 2K
RY300	1-515-716-11	s	RELAY
RY1501	1-515-716-11	s	RELAY
RY1502	1-515-716-11	s	RELAY
S1	1-570-083-11	s	SWITCH, SLIDE
S3	1-554-937-11	s	SWITCH, PUSH
S101	1-554-080-00	s	SWITCH, DIGITAL
S102	1-554-080-00	s	SWITCH, DIGITAL
T1	1-437-194-21	s	TRANSFORMER, PULSE
T600	1-437-194-21	s	TRANSFORMER, PULSE
X100	1-577-258-11	s	CRYSTAL 32.00000MHz
X401	8-749-923-59	s	IC VCO-8003

CN-942 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-506-A	o	MOUNTED CIRCUIT BOARD, CN-942
(This assembly includes the following parts.)			
C1	1-164-159-11	s	CERAMIC 0.1uF 50V
C2	1-164-159-11	s	CERAMIC 0.1uF 50V
C3	1-102-963-00	s	CERAMIC 33PF 5% 50V
C10	1-126-933-11	s	ELECT 100uF 20% 16V
CN1	1-695-965-11	o	HEADER (STRAIGHT) 10P, MALE
CN2	1-580-347-11	s	CONNECTOR, BNC, FEMALE
CN3	1-580-347-11	s	CONNECTOR, BNC, FEMALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
IC1	8-759-951-24	s	IC SN75124N
IC2	8-759-951-23	s	IC SN75123N
R1	1-247-804-11	s	CARBON 75 5% 1/4W
R2	1-249-401-11	s	CARBON 47 5% 1/4W
R3	1-249-425-11	s	CARBON 4.7K 5% 1/4W
S1	1-570-898-11	s	SWITCH, SLIDE

DP-131 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-636-210-11	o	PRINTED CIRCUIT BOARD, DP-131
1pc	1-251-094-11	o	SOCKET, IC 8P
CN1	1-564-002-11	s	CONNECTOR 3P, MALE
D1	8-719-921-06	s	LED HLMP-2965, RED
R1	1-249-403-11	s	CARBON 68 5% 1/4W
R2	1-249-403-11	s	CARBON 68 5% 1/4W
R3	1-249-403-11	s	CARBON 68 5% 1/4W
R4	1-249-403-11	s	CARBON 68 5% 1/4W

SW-645 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-650-730-11	o	PRINTED CIRCUIT BOARD, SW-645
4pcs	4-928-315-01	s	KEY TOP
C1	1-124-126-00	s	ELECT 47uF 20% 25V
CN1	1-506-480-11	s	CONNECTOR 15P, MALE
CN2	1-564-004-11	o	CONNECTOR 5P, MALE
D1	8-719-812-43	s	LED TLG124A, GRN
D2	8-719-812-43	s	LED TLG124A, GRN
D6	8-719-812-31	s	LED TLR123, RED
R1	1-249-413-11	s	CARBON 470 5% 1/4W
R2	1-249-413-11	s	CARBON 470 5% 1/4W
S1	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S2	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S3	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S4	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S5	1-692-823-11	s	SWITCH, PUSH

SW-669 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-650-731-11	o	PRINTED CIRCUIT BOARD, SW-669
4pcs	4-928-315-01	s	KEY TOP
CN1	1-506-480-11	s	CONNECTOR 15P, MALE
CN2	1-564-004-11	o	CONNECTOR 5P, MALE
D6	8-719-812-31	s	LED TLR123, RED
S1	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S2	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S3	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S4	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S5	1-692-823-11	s	SWITCH, PUSH

NOTE: Please see page 9-5 for the parts that are not listed in the parts list.

VR-176 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-505-A	o	MOUNTED CIRCUIT BOARD, VR-176
(This assembly includes the following parts.)			
C2	1-164-159-11	s	CERAMIC 0.1uF 50V
C4	1-164-159-11	s	CERAMIC 0.1uF 50V
C10	1-125-447-11	s	DOUBLE LAYERS 1FARAD 5.5V
C11	1-164-159-11	s	CERAMIC 0.1uF 50V
C12	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C13	1-126-160-11	s	ELECT 1uF 20% 50V
C21	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C22	1-164-159-11	s	CERAMIC 0.1uF 50V
C100	1-104-664-11	s	ELECT 47uF 20% 25V
C111	1-130-495-00	s	MYLAR 0.1uF 5% 50V
CN1	1-506-480-11	s	CONNECTOR 15P, MALE
CN2	1-564-004-11	o	CONNECTOR 5P, MALE
CN3	1-506-480-11	s	CONNECTOR 15P, MALE
CN4	1-564-004-11	o	CONNECTOR 5P, MALE
CN5	1-695-254-11	o	HEADER (RIGHT ANGLE TYPE) 50P, MALE
CN6	1-695-254-11	o	HEADER (RIGHT ANGLE TYPE) 50P, MALE
CN7	1-564-002-11	s	CONNECTOR 3P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D10	8-719-987-87	s	DIODE ERA85-009
IC1	8-759-291-30	s	IC TC9130P
IC2	8-759-291-30	s	IC TC9130P
IC3	8-759-291-30	s	IC TC9130P
IC4	8-759-916-14	s	IC SN74HC04N
Q101	8-729-900-39	s	TRANSISTOR DTA124EF
Q102	8-729-900-39	s	TRANSISTOR DTA124EF
R11	1-249-392-11	s	CARBON 8.2 5% 1/4W
R12	1-249-392-11	s	CARBON 8.2 5% 1/4W
R13	1-215-377-00	s	METAL 15 1% 1/6W
R14	1-215-389-00	s	METAL 47 1% 1/6W
R15	1-215-401-11	s	METAL 150 1% 1/6W
R16	1-215-414-00	s	METAL 510 1% 1/6W
R17	1-215-427-00	s	METAL 1.8K 1% 1/6W
R21	1-249-392-11	s	CARBON 8.2 5% 1/4W
R22	1-249-392-11	s	CARBON 8.2 5% 1/4W
R23	1-215-377-00	s	METAL 15 1% 1/6W
R24	1-215-389-00	s	METAL 47 1% 1/6W
R25	1-215-401-11	s	METAL 150 1% 1/6W
R26	1-215-414-00	s	METAL 510 1% 1/6W
R27	1-215-427-00	s	METAL 1.8K 1% 1/6W
R101	1-249-417-11	s	CARBON 1K 5% 1/4W
R102	1-249-417-11	s	CARBON 1K 5% 1/4W
R103	1-249-417-11	s	CARBON 1K 5% 1/4W
R104	1-249-417-11	s	CARBON 1K 5% 1/4W
R105	1-215-406-00	s	METAL 240 1% 1/6W
R106	1-215-406-00	s	METAL 240 1% 1/6W
R107	1-215-406-00	s	METAL 240 1% 1/6W
R108	1-215-406-00	s	METAL 240 1% 1/6W
R109	1-249-417-11	s	CARBON 1K 5% 1/4W
R110	1-249-417-11	s	CARBON 1K 5% 1/4W
R111	1-249-417-11	s	CARBON 1K 5% 1/4W
R112	1-249-417-11	s	CARBON 1K 5% 1/4W

NOTE: Please see page 9-5 for the parts that are not listed in the parts list.

(VR-176 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R113	1-249-429-11	s	CARBON 10K 5% 1/4W
R115	1-215-406-00	s	METAL 240 1% 1/6W
R116	1-215-406-00	s	METAL 240 1% 1/6W
R129	1-249-417-11	s	CARBON 1K 5% 1/4W
R130	1-249-417-11	s	CARBON 1K 5% 1/4W
R131	1-249-417-11	s	CARBON 1K 5% 1/4W
R132	1-249-417-11	s	CARBON 1K 5% 1/4W
R133	1-215-406-00	s	METAL 240 1% 1/6W
R134	1-215-406-00	s	METAL 240 1% 1/6W
R135	1-215-406-00	s	METAL 240 1% 1/6W
R136	1-215-406-00	s	METAL 240 1% 1/6W
RB101	1-235-195-00	s	RES BLOCK 10kx8
RB102	1-235-195-00	s	RES BLOCK 10kx8
RB103	1-235-195-00	s	RES BLOCK 10kx8
RV1	1-223-597-11	s	RES, VAR CARBON 10kx2
RV2	1-223-597-11	s	RES, VAR CARBON 10kx2
RV3	1-223-597-11	s	RES, VAR CARBON 10kx2
RV4	1-223-597-11	s	RES, VAR CARBON 10kx2
S1	1-692-889-11	s	SWITCH, ROTARY
S2	1-692-889-11	s	SWITCH, ROTARY

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-251-148-11	s	INLET, AC 3P, MALE
1pc	⚠1-413-950-11	s	REGULATOR, SWITCHING
1pc	⚠1-570-384-11	s	SWITCH, ROCKER (AC POWER)
2pcs	1-952-916-11	o	HARNESS, SUB (AD-SW)
1pc	1-952-917-11	o	HARNESS, SUB (AD-CN)
1pc	⚠1-952-918-12	o	HARNESS, (PS-AD1)
2pcs	1-952-920-11	o	HARNESS, SUB (SW-VR1)
2pcs	1-952-921-11	o	HARNESS, SUB (SW-VR2)
1pc	1-952-922-11	o	HARNESS, SUB (DP-VR)

9-4. ACCESSORIES SUPPLIED

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-534-754-00	s	CORD, POWER (For J)
1pc	⚠1-557-377-11	s	CORD, POWER (For UC)
1pc	⚠1-590-910-11	s	CORD SET, POWER (For EK)
1pc	2-990-242-01	s	HOLDER (B), PLUG

NOTE: Please see page 9-5 for the parts that are not listed in the parts list.

このマニュアルに記載されている事柄の著作権は当社にあり，説明内容は機器購入者の使用を目的としています。
従って，当社の許可なしに無断で複写したり，説明内容(操作，保守等）と異なる目的で本マニュアルを使用することを禁止します。

The material contained in this manual consists of information that is the property of Sony Corporation and is intended solely for use by the purchasers of the equipment described in this manual.
Sony Corporation expressly prohibits the duplication of any portion of this manual or the use thereof for any purpose other than the operation or maintenance of the equipment described in this manual without the express written permission of Sony Corporation.

Le matériel contenu dans ce manuel consiste en informations qui sont la propriété de Sony Corporation et sont destinées exclusivement à l'usage des acquéreurs de l'équipement décrit dans ce manuel.
Sony Corporation interdit formellement la copie de quelque partie que ce soit de ce manuel ou son emploi pour tout autre but que des opérations ou entretiens de l'équipement à moins d'une permission écrite de Sony Corporation.

Das in dieser Anleitung enthaltene Material besteht aus Informationen, die Eigentum der Sony Corporation sind, und ausschließlich zum Gebrauch durch den Käufer der in dieser Anleitung beschriebenen Ausrüstung bestimmt sind.
Die Sony Corporation untersagt ausdrücklich die Vervielfältigung jeglicher Teile dieser Anleitung oder den Gebrauch derselben für irgendeinen anderen Zweck als die Bedienung oder Wartung der in dieser Anleitung beschriebenen Ausrüstung ohne ausdrückliche schriftliche Erlaubnis der Sony Corporation.